FINAL REPORT

LEHIGH PHASE II PROJECT

MT DEQ-AMR No. 94-002

Judith Basin County, Montana

Site Located in Central, Montana

T15N, R12E
SE¼ of Section 16
NE¼ of Section 21

December 18th, 1996

Spectrum Engineering
1413 4th Avenue North
Billings, Montana 59101

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LEHIGH PHASE II PROJECT

1. INTRODUCTION

1.1 Project Description

The Lehigh Phase II Project was designed to permanently neutralize the acid generating potential of 82,000 tons of coal waste which had been placed in a large disposal area near Lehigh during a previous AMR project and to establish viable vegetation on the regraded area. This was the second phase of a three phase project. During the project 15,846 tons of lime kiln dust was acquired from Continental Lime's plant near Townsend and hauled to the Lehigh site for mixing with the coal waste.

1.1.1 Location and Access

The Lehigh Project is located 3½ miles southwest of Windham in the SE¼ of Section 16 and NE¼ of Section 21 T15N, R12E in Judith Basin County. General access is by proceeding 67 miles east from Great Falls on Highway 87 to its junction with Secondary 541 near Windham. Then proceed southwest on 541 approximately one mile to an improved gravel road which branches off the right side of the highway and continues to the southwest as the highway turns toward the south. The abandoned town of Lehigh is located approximately 2.8 miles up this gravel road. A large concrete loadout structure marks the location of the mine at Lehigh. The Lehigh Project area is found on the 7½ minute USGS quadrangle named Windham, Mont. at latitude 47°03'05" and longitude 110°12'18".

1.1.2 Land Ownership

The site is owned by the following landowner:

Gayle Evans
P.O. Box 3156
Stanford, MT 59479
(406) 566-2509

1.1.3 History

A history of mine development in the area surrounding this site can be found in the *Historical and Cultural Survey of Selected Abandoned Mine Sites in the State of Montana* by Historical Research Associates, Missoula, Montana, dated March 19, 1982. The section on the Hughes Complex - Mine F refers to this site. The Seaman Mine was the first mine of note in this area.

Previous reclamation work on this site occurred during the Lehigh Abandoned Mine Reclamation Project which was bid on October 31, 1989. This contract was awarded to Montgomery Construction of Hilger, Montana. The main objective of this project was to remediate impacts associated with a large coal slack pile located in a coulee near Lehigh. This pile was the main coal waste disposal area for the Cottonwood Coal Company's underground mine at Lehigh. The Lehigh mine accessed the coal seam from a 208 foot deep shaft and began production in 1914. The Cottonwood Coal Company was a subsidiary of the Great Northern Railroad. The mine was

developed to supply coal to the railroad after production out of their mines in Sand Coulee and Stockette proved inadequate. The peak production years were from 1918-1919. The mine at Lehigh was closed in 1921 after a labor dispute. The mine closure led to the abandonment of the town which had a population of 5000 people by then.

The mine and wash plant at Lehigh were capable of producing over 2500 tons/day. A conveyor was originally used to carry waste products from the facilities to the disposal area. In 1917, an aerial tramway was constructed. It is estimated that the disposal area eventually received as much as 225,000 cubic yards of wash plant and mine wastes. The pile bridged a coulee in the North Fork Sage Creek drainage creating an impoundment. Water seeping through the pile eventually created an acid mine drainage problem which effected 10-15 acres of range land. In 1983, the AMR Program attempted to reduce the acidic seepage by placing a heavy clay liner on the upstream face of the pile; however, this liner was ineffective. The Lehigh Abandoned Mine Reclamation Project in 1989-1990, moved a reported 200,400 cubic-yards of this waste pile to a 10 acre disposal area located on the slopes of the coulee adjacent to the waste pile. This material was compacted in lifts, graded, limed at the rate of 20 tons/acre, covered with an 8-inch layer of salvaged soil, and revegetated.

Potential problems resulting from the reclamation of the Lehigh coal waste pile were first observed by AMR staff during the summer of 1991. At that time, vegetation was in moderate to good condition on the majority of the reclaimed site: but, several areas were either unvegetated or exhibited poor growth. In addition, much of the reclaimed coulee bottom was unvegetated and salt efflorescence were observed along the banks of the coulee.

In 1991 and 1992, Chen-Northern, Inc. was assigned several tasks designed to evaluate acidic seeps and the potential for soil acidification in the area where the 1989-1990 project had deposited the Lehigh coal wastes. The Chen-Northern studies concluded that additional monitoring and study would be required to select the most suitable remediation alternative. However, their February 1992 report states; "that acidification of the coversoil will eventually occur. This process will probably occur over an extended period of time and the resulting effects on the vegetative cover may not be realized for many years." Their preliminary recommendation was to move the coal waste to a more suitable location and to encapsulate the coal waste in a constructed disposal site which would be excavated and could provide 4-feet of capping material.

In May 1994, Dr. Doug Dollhopf, et al from the Reclamation Research Unit at Montana State University were contracted to determine the total lime requirement to permanently neutralize the entire coal waste mass. It was recommended that 307 tons of $CaCO_3$ or lime kiln dust per 1000 tons of coal waste be applied. The study estimated that 205,550 cubic yards of coal waste would be neutralized if the entire mass was treated.

Due to the limited amount of lime kiln dust that could be obtained in any year, the project had to be divided into several phases. The first phase of the Lehigh Project was completed in 1995. The initial phase was designed to permanently neutralize the acid generating potential of 92,000 cubic-yards of coal waste; however, only a measured 46,712.2 tons (approx. 46,000 loose cubic-yards) of coal waste was actually treated during the project. A supply of lime kiln dust was purchased from Continental Lime at a bid price of $6.00 per Ton FOB at the plant. Under a separate contract, 16,970 tons of lime kiln dust was hauled from the Continental Lime's plant near Townsend and placed in storage pits located near Lehigh. During construction, Continental Lime's Indian Creek Plant supplied an additional 2380.71 tons of lime kiln dust. Spectrum Engineering prepared the bid packages and performed the construction management for the first phase which was limited to the west end of the Lehigh Site. M.K. Weeden Construction was awarded the main contract to neutralize the coal waste at Lehigh. A pug mill was used to mix

the lime and coal waste. Temporary lime storage pits were used during this phase of the project. The average neutralization rate for this phase of the project was 285 tons of lime (100% calcium carbonate equivalence) per 1000 tons of coal waste or 339 tons of lime kiln dust per 1000 tons of coal waste.

Lehigh Phase II was completed by Shumaker Trucking and Excavating in 1996. Due to the problems which had previously been experienced, the pug mill mixing and storage pit concepts were discarded. During this phase, 86,832 tons (approx. 87,000 loose cubic-yards) of coal waste was processed with lime kiln dust at an average neutralization rate of 180 tons of lime (100% calcium carbonate equivalence) per 1000 tons of coal waste or 182 tons of lime kiln dust per 1000 tons of coal waste. The neutralization rate was reduced for the second phase because weekly composite samples from the first phase indicated that the processed material had been consistently over limed. The change reduced the theoretical confidence level for having all possible samples completely neutralized from 90% to 50%. Spectrum Engineering again performed the design and construction engineering functions.

An additional phase will be required to complete the project. Based on the area which has been reclaimed to date and the associated quantities which have been reported, the original quantity of 205,550 cubic yards of coal waste for the entire project appears to have been over-estimated. The current estimate is that a total of 175,00 loose cubic-yards will be neutralized. Approximately 72% of the project area and 76% of the quantity had been treated by the end of Phase II.

1.2 Project Objectives

The project objective was to permanently neutralize the acid generating potential of coal waste associated with a large abandoned coal mine at Lehigh. Lehigh Phase II was the second of a three phase project. It was designed to address 86,832 tons or approximately 87,000 loose cubic-yards of coal waste. The treated area was covered with soil and revegetated. The Phase I area was also covered with additional covers0il and reseeded.

2. RESPONSIBLE PARTIES

2.1 Contractor

The successful bidder was Shumaker Trucking and Excavating Contractors, Inc.. Their address is shown below:

Shumaker Trucking and Excavating Contractors, Inc.
P.O. Box 1442
Great Falls, MT 59403-1442
Phone: 406/727-3537

Shumaker Trucking sub-contracted the kiln dust haulage portion of the work to:

TranSystems, Inc.
1501 Third Street NW
Great Falls, MT 59404
Phone: 406/727-7500

2.2 Reclamation and Engineering Plan

Spectrum Engineering was assigned the responsibility of preparing engineering plans and specifications for this project. Dr. Doug Dollhopf, et al from the Reclamation Research Unit at Montana State University provided those specifications concerning coal waste neutralization.

Spectrum's address is shown below:

Spectrum Engineering
1413 4th Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.3 Quality Control Inspection

Spectrum Engineering performed the quality control inspection. Bill Maehl performed project engineering functions. Dick Lohrenz served as construction inspector.

2.4 AMR Program Coordination

The AMR Project Manager was Joel Chavez, Montana Department of Environmental Quality, Abandoned Mine Reclamation Program.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

A pre-bid conference was held at Continental Lime's mine office near Townsend on July 2nd, 1996. Joel Chavez represented the DEQ-AMR and Bill Maehl represented Spectrum Engineering. The meeting was attended by a large number of prospective bidders. All of the contractors who submitted bids were in attendance.

3.2 Bid Date

The bid opening date was July 11th, 1996 at 2:00 p.m. at the Montana Department of Environmental Quality, Abandoned Mine Reclamation Program's office, 1520 East 6th, Helena, Montana.

3.3 Lowest Bids

Three (3) qualified bidders responded to the solicitation. Bidders included: Shumaker Trucking and Excavating, M.K. Weeden, and Donnes Construction. The low bid of $841,400.00 was submitted by Shumaker Trucking and Excavating Inc.. The remainder of the bids ranged from $953,654 to $1,100,000. The Engineer's estimate was $918,420.00. The bid tabulation is presented in ATTACHMENT 1. The construction contract did not include the purchase of lime kiln dust.

3.4 Contract Agreement

The Contract Agreement was signed July 24th, 1996. The Notice to Proceed was issued for a starting date of August 5th, 1996. The term of the contract was to be one-hundred and twenty (120) consecutive calendar days. December 2nd, 1996, was the scheduled completion date for work under the Contract.

3.5 Construction Start-up

A Pre-Construction Conference was held at the Lehigh site on July 31st, 1996. Shumaker Trucking and Excavating started work on August 5th, 1996.

3.6 Change Orders

Two Change Orders were written for this project. Copies of the Change Orders are included in ATTACHMENT 2 of this report. Change Order No. 1 was issued to increase the contract amount by $32,766.00 to provide for extra water at a negotiated price of $30/Kgal.

Change Order No. 2 was issued to increase the contract amount by $58,478.65. It was required to compensate the Contractor for added work elements and to adjust estimated quantities to actual measured quantities for completed bid items. The following work items were added:

(1) Excavate silty coal waste from the creek bottom and to incorporate this material into the coal slack that was to be limed (added $6,026); and,

(2) Provide an additional 7,510 CY of coversoil at $5.50/CY (added $41,305).

The adjustments made to existing bid items were as follows:

(1) The quantity of silt fence decreased by 350 feet (decreased $2,100);

(2) The quantity for remove and replace coversoil decreased by 4,640 CY (decreased $8,120);

(3) 153.65 tons less of lime kiln dust was delivered and incorporated (decreased $5,992.35);

(4) The acreage for seed, fertilize and mulch went up 11.1 acres due to decisions to replant the Phase I area, to revegetate a road below the Phase I area, to reclaim the creek bank, and to seed the coversoil borrow area (added $13,320); and,

(5) Increased the quantity of provide water negotiated under Change Order No. 2 by another 487.2 Kgal (added $14,616).

Changes ordered over the entire project increased the contract price from $841,400.00 to $932,644.65. This was an increase of $91,244.65 in the price.

3.7 Work Stoppages

Shumaker Trucking and Excavating started work on August 5th, 1996 and worked a five day week through October 2nd, 1996 when Phase II was completed. No days were lost due to weather. The contractor had personnel and equipment operating on 44 days during the project.

3.8 Requests for Payment

Two payment requests were made during this project. A copy of each Pay Request is included in ATTACHMENT 3. A 10-percent retainage was withheld on the first request; and, a 1-percent retainage is still being held on the second request for payment. The amount of work completed for each request is shown below:

No. 1	08/05/1996 to 09/01/1996	$604,757.53
No. 2-Final	09/01/1996 to 10/03/1996	$327,887.12

3.9 Substantial Completion

The date of Substantial Completion was October 2nd, 1996.

3.10 Final Completion and Approval

Joel Chavez of the DEQ-AMR made periodic inspections of the work in progress throughout the project. Final completion will be October 2, 1997.

3.11 Final Payment

Final payment was made to the Contractor in December 1996. A copy of the payment request has been included in ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The construction plan developed by Spectrum Engineering was designed to neutralize approximately 50% of the total acidic coal waste at the Lehigh Site with lime kiln dust and to establish a viable vegetative cover over the regraded area. About 26% of the waste had been treated during the first phase of the project. The remainder of the coal waste will be excavated, treated, and replaced in a third and final phase of the project. Phase II work was to consist of obtaining a MPDES permit; mobilizing to the site; installing silt fence; providing water; salvaging, stockpiling, and replacing coversoil; delivering lime kiln dust from Continental Lime in Townsend to the project site; excavating 82,720 cubic yards of coal waste, mixing with 16,000 tons of lime kiln dust at a variable rate from 150 to 200 tons/1000 tons with coal waste, and then replacing the neutralized coal waste; neutralizing coversoil with $CaCO_3$; placing borrowed coversoil; and revegetating all disturbed areas. The work items are summarized as follows:

(1) **MPDES Permit** - A MPDES Storm Water Control Plan and Permit would be secured from the Montana Department of Health and Environmental Sciences - Water Quality Division. This permit would be in place prior to mobilization.

(2) **Mobilization** - At a minimum, a water truck, revegetation equipment, sealable hauling units for lime kiln dust transport, scrapers or other excavation equipment for coal slack excavation, and specialized mixing equipment for incorporation of the lime with the coal waste would be mobilized to the site. To prevent the spread of noxious weeds into the project area, equipment and vehicles would be cleaned with high pressure water before moving the equipment into the project area.

(3) **Erosion Control Protection** - Approximately 1,650 feet of either straw bale dike or silt fence would be installed along the bottom of the construction area.

(4) **Provide Water** - A water truck would be available at all times for haul road dust suppression and for the lime mixing operation. Total water usage was estimated at 130,000 (130 Kgal) gallons. The water would be obtained from a mine shaft at the concrete loadout structure at the foot of the hill to the south of the project area.

(5) **Remove, Stockpile and Replace Coversoil** - A total of 10,200 cubic yards of coversoil would be stripped, stockpiled and replaced. Coversoil thickness at the site was expected to vary from almost nothing to ten inches. In the lime kiln dust treatment area coversoil would be stripped to within one inch of the underlying coal waste to prevent the underlying coal waste from being mixed with the salvaged coversoil. An estimated 7,600 cubic yards of coversoil (7.1 acres at 8-inch average depth) would stripped from this area. It would be stockpiled separately so it could be neutralized with calcium carbonate after replacement. The estimated 2,600 cubic yards of coversoil that was expected to be salvaged from 2.3 acres in the staging and stockpile areas would not require neutralization upon replacement.

(6) **Deliver Lime Kiln Dust From Continental Lime To Project Site** - The DEQ-AMR had purchased a supply of lime kiln dust from Continental Lime. This supply of the lime kiln dust was located approximately 6 miles west of Townsend, in a storage pit in Section 33, T7N, R1E, Broadwater County, Montana. This area can be accessed by leaving Highway 287 just north of Townsend across the Missouri River, turning on the paved road to the west of Highway 287 and proceeding to the Continental Lime Plant.

The Contractor would be required to load the lime kiln dust at the kiln reject pile, the silos, and the pit onto his trucks and to deliver it to the Lehigh site. Lime kiln dust is a fine powder. It had to be loaded and hauled in a manner that prevented release of this material. If belly dump trailers were to be used to transport the material, rubber seals would be required on the gates and traps would be installed over the top.

(a) PIT MATERIAL - "Boulders" of kiln dust may be found in the storage pit at Continental. These boulders must be set aside at the site and not be transported to Lehigh. The Contractor would be required to have either a screening plant capable of supplying 1-inch minus material or a grizzly on the front of the loader bucket capable of supplying 1-inch minus material. Approximately 11,400 tons (84% calcium-carbonate equivalent) would be supplied from the pit.

(b) KILN REJECT MATERIAL - A pile of reject material was located at the plant. The quantity was estimated at 2,000 tons (106% calcium-carbonate equivalent). Only 1-inch minus material would be loaded from this pile.

(c) SILO MATERIAL - Lime kiln dust would be loaded from the plant storage hoppers or silos at Continental Lime as it became available. Continental currently produces from 25 to 50 tons per day, 7 days per week depending on whether they are running one or two kilns. It was assumed that the Contractor would haul 260+ tons per week for 10 weeks from the silos for a total of 2,600 tons (113% calcium-carbonate equivalent).

The Contractor would be required to supply his own certified scales with printable weight slips at the Lehigh site for weighing all trucks carrying lime to Lehigh. All trucks would be weighed full coming in and empty going out. The net weight of lime delivered to the project site would be the basis of lime payment. A total of 16,000 tons of lime kiln products, 2,000 tons of kiln reject from a pile, and 2,600 tons from the silos would be hauled over approximately the first 10-13 weeks of the 16 week contract period. The truck driver would be required to tell the Engineer upon site arrival which source his load originated from for mixing purposes.

(7) **Excavate Coal Waste, Neutralize With Lime Kiln Dust and Replace** - Because crusher and pug mill concept with on-site kiln storage pits had proved less than successful during Lehigh Phase I in 1995, we planned to allow the Contractor to use his ingenuity to propose the appropriate equipment to accomplish the task at hand. The Contractor would submit his proposed coal waste stripping, neutralizing, and replacement plan for approval as part of his bid. At a minimum, the equipment proposed must be able to accurately incorporate measured quantities of lime kiln dust into the coal waste providing thorough and even mixing with a minimal amount of dust.

The Contractor would be required to excavate the coal waste (82,720 CY) from 7.1 acres and to neutralize it with lime kiln dust. The Contractor would unload and incorporate this lime kiln dust into the coal waste. ***The lime kiln dust had already been secured under a separate contract and was not need to be purchased by the Contractor.*** After the coal waste had been neutralized, it would be replaced in the areas from which it was excavated. The Contractor would replace the coal waste to create approximately the original topography. All edges must be graded to match the existing contours.

The coal waste stripping depth was expected to vary considerably. A coal waste thickness

isopach drawing is included Attachment 5. The initial box cut or pit would be stockpiled. Each successive pit would then be placed in the previous hole until the temporary stockpile could be placed in the final hole. During Lehigh Phase I, extremely wet conditions were encountered in the bottom part of the pit. Prospective Contractors were cautioned that wet conditions could cause delays.

The accurate mixing of the lime kiln dust with the coal waste was considered to be critical to the success of this project. Any randomly selected square yard of mixed material should be able to be tested and shown to be thoroughly mixed to the design neutralization criteria. A coal waste density with 18% moisture content of 1 ton per 1 per loose cubic-yard was assumed.

In the table below, the application rate of lime kiln dust that would be applied to the coal waste has already been adjusted to account for the moisture content. The lime kiln dust to coal waste mixing rate varies between the four products in the Continental Pit. These are shown in the following table.

CONTINENTAL LIME LIME KILN DUST SOURCE	REQUIRED LIME RATE IN TONS PER 1000 TONS OF COAL	TONS OF LIME HAULED TO LEHIGH	TONS OF LIME MIXED (ASSUMED 12% WIND LOSS)	ACTUAL LIME RATE TO BE USED TO ACHIEVE NEEDED RATE	TONS OF COAL WASTE TO BE MIXED
Pit - Newer Material	169	6900	6,100	190	36,300
Pit - Older Material	200	4500	4,000	224	20,000
Kiln Reject Pile	159	2000	1,800	180	11,100
Silos	150	2600	2,300	170	15,300
TOTAL	150-200	16,000	14,200	170-224	82,700

Based on the Lehigh Phase I experience, It was anticipated that liming rates would need to be increased by 12% to account for wind losses. Care would be taken by the Contractor during each phase of this process to insure that the amount of lime kiln dust lost to the environment was kept to a minimum. Dust control measures would include spray bars on the mixing equipment. The lime kiln dust hauled during the course of this project would be incorporated into the coal waste as the lime kiln dust was hauled to the site.

(8) **Neutralize Coversoil Stripped from Coal Waste Area with $CaCO_3$ At a 60 Ton/Acre Rate** - All coversoil salvaged from above the coal waste area (7,600 cubic yards) would be replaced in one six to eight inch lift and then neutralized with calcium carbonate ($CaCO_3$) in a single pass. This neutralization requires uniform lime mixing (incorporation) with equipment designed for such mixing throughout the entire depth of the coversoil. This incorporation of lime should not extend below the coversoil depth. A liming rate of 60 tons/acre would be used. *Note that lime kiln dust could not be used for neutralization of the coversoil.*

(9) **On-Site Borrow and Place 3-inches of Native Coversoil** - The Contractor would be required to borrow 2,900 cubic yards of coversoil from a designated area which had been specified by the landowner. This material would be placed in one three-inch lift over the neutralized coversoil (7.1 acres). The Contractor would be required to grade the borrow area to blend with the surrounding topography after the coversoil was removed. This borrowed material would provide a total of 11-inches of root zone material (8-inches of neutralized material plus 3-inches of borrow) over the entire neutralized area.

(10) **Fertilize, Seed and Mulch** - All disturbed areas would be seeded, fertilized and mulched upon completion of the other work items. An estimated 10.9 acres would require revegetation. This acreage consisted of 7.1 acres of neutralized coal slack area, 0.9 acres of staging area, 1.4 acres of initial coal waste stockpile area (1st cut), and 1.5 acres of coversoil borrow area. A drill seeding rate is 23 pounds of pure live seed per acre, a fertilizer rate of 92.5 pounds of nutrients per acre, and a straw or grass hay mulching rate of 3,000 pounds per acre would be used.

4.2 Major Equipment List

Type	Make/Model	Size/Horsepower	No. on Job
Bulldozer	Caterpillar D-8N	285 Hp	1
Bulldozer	Caterpillar D-9G	385Hp	1
Scraper	Caterpillar 627B	14-20 yd/ 450 Hp	2
Scraper	Caterpillar 633C	32yd/ 415 Hp	1
Hydraulic Excavator	Caterpillar EL300	2 yd/ 206 Hp	1
Wheel Loader	Caterpillar 980C	6.75 yd/ 270 Hp	1
Backhoe-Loader	Caterpillar 416	1 yd/ 62 Hp	1
Motor Grader	Caterpillar 140G	150 Hp	1
Seed Drill	Brillion		1
Offset Disc	Rome		1
Manure Spreader			1
Crimper			1
Service Truck	Mack		1
Fuel Truck	Kenworth '65	8000 Gal	1
Water Truck	Peterbilt '67	4200 Gal	1
Tool Van			1
Roto Miller	Bros		1
Scales			1
Generator Set	Overlite		1
Water Pump		6-Inch	1

4.3 Contractor Employees

During the first week when Shumaker was getting his operation set-up, 4 to 5 employees were on site with the construction superintendent; and, TranSystems had 1 to 2 trucks working. From the second week through the fifth week when lime kiln dust was being hauled, Shumaker had 7 to 9 employees and their construction superintendent assigned to the project. TranSystems had 8 to 23 trucks delivering lime kiln dust from Townsend to Lehigh and additional personnel at the loading site. Final reclamation work items were generally completed from the sixth week through the ninth and final week. On various days, during the final four weeks of the project, the contractor had from two (2) to seven (7) employees and a supervisor working at the project site.

4.4 Construction Activities

Work on the Lehigh Phase II Project proceeded according to the general plan and the work specifications. Notable changes in the plan quantities and in the planned work are discussed in section ***3.6 Change Orders***. The system used by the Contractor to mix the lime kiln dust into the coal waste had the following elements:

1) Build a 250 foot long pad containing approximately 2000 loose cubic-yards of coal slack. The quantity of slack in the pad must be measured and coordinated with the number of loads of kiln dust that will be dumped and the specified liming rate;

2) Cut one shallow trench along the total length of the pad for each truck load of kiln dust. The trenches must be evenly spaced;

3) Weigh trucks as they arrive. Each truck holds roughly 40 tons of kiln dust;

4) Belly dump one load into each trench spreading it evenly along the entire length of the trench. Most trucks must be towed across the pad;

5) Use a covered paddle wheel scraper to simultaneously excavate the coal slack and kiln dust in the mixing pad;

6) During mixing the pad is sprayed with water and disced;

7) Each scraper load of the coal slack and kiln dust mixture is dumped on a processed material stockpile and blended into subsequent loads;

8) As backfill space becomes available, the processed waste stockpile is excavated with a paddle wheel scraper further mixing the previously processed material from different loads and pads;

9) The paddle wheel scraper takes the material from the processed waste stockpile to a backfill area and spreads it in long thin layers again mixing the material and randomly blending material from various loads;

10) A grader and dozers spread and further mix the material as it is distributed and compacted in the backfill area.

The construction inspector's observations and comments on the daily work activities are present below:

August 5 — The first day of construction. Duane Shumaker and two operators were on-site along with two laborers. A road was bladed to accommodate the trucks delivering lime kiln dust and a truck scale. Weigh scale was erected on-site. A 100' x 48' dike was built to house the diesel fuel tanker and service truck. 400' of silt fence was laid on the creek bottom. A 627 scraper was used to begin stripping cover soil and stockpiling on the east end of the site.

August 6 — Duane Shumaker and three operators were on-site with two 627 scrapers and a D8N bulldozer operating. They stripped and stockpiled 171 loads of cover soil. Rockwell scale service calibrated the scales on-site. An additional 300' of silt fence was erected. First truck load of lime arrived on-site and was

dumped in the test trench.

August 7 — Duane Shumaker and three operators were on-site along with one laborer and one mechanic. A water truck arrived on-site for dust suppression. The first test of the coal waste and kiln dust mixing process took place. It consisted of the D8N dozer, pulling the belly-dump trucks over a 2' x' 2' trough in the coal for a distance of 250'. The paddle wheel scraper followed picking up coal and lime together and mixing them with its paddles. The processed material was stockpiled on the south end of the site. Sixty-eight loads of coversoil were stripped and stockpiled.

August 8 — A five man crew worked throughout the day stockpiling 23 loads of cover soil with the 627 scraper. Six loads of lime/coal mix were stockpiled using the 633 paddle-wheel scraper. The water allotment has been exhausted because of the dry, windy dust conditions on-site and the fact that the coal waste is much dryer than had been experienced during the Phase I project in 1995.

August 9 — The same crew built a mixing pad which was long enough and wide enough to accommodate eight trucks. Coal and lime continues to be mixed and stockpiled.

August 12 — Duane Schumaker, four operators, two laborers, and a mechanic were on-site. Transystems Trucking begin hauling lime in two shifts. The first set of six trucks arrive on-site at 6:00 a.m. They are weighed and dumped. Coal is mixed and stockpiled by 10:30 a.m. The second set of six trucks arrived at 4:00 p.m. Dumped, mixed and stockpiled by 8:00 p.m.

Aug 13 & 14 — The same crew was on-site and essentially the same procedure was followed. Continuing to mix and stockpile. Everything ran smoothly with the two shifts of trucks arriving daily.

Aug 15 & 16 — Same crew is on-site. Still liming, mixing, and stockpiling. Begin stripping coal from hillside to lay in pad for mixing. The D8N Cat and scrapers were being utilized for this.

Aug 19 - 26 — The same crew is on-site. Still following the same procedure of pulling lime trucks through the "runway" mixing pad after trenching with the D8N. After the kiln dust and coal waste are mixed by the 633C paddle wheel scraper, the processed material is stockpiled. The dozer and two 627 scrapers continue stripping sidehill and building runway for next set of lime trucks.

August 27 — The same crew was on-site. Still running two shifts of liming trucks and mixing. The sidehill has been stripped of coal; so, the paddle wheel scraper is taking mixed product off the stockpile and remixing the processed material as it lays it back on the hillside.

August 28 — Trucks arrive at 5:40 a.m. The wind is extreme and starting to blow lime out of control so the crew begins discing and watering lime into the coal which is working good at controlling the loss. Shut down at 6:00 p.m. after second set of trucks are dumped, mixed, and stockpiled, because of dangerous conditions from lightening and rain.

August 29 — The same crew is on-site. Start work at 5:15 a.m. to clean runway mixing pad and await lime trucks because of the early shut down the previous evening. Everything is back on track at this point with lime trucks arriving and following the same routine. Straw for mulching arrives and is stacked on-site at 11:00 a.m.

August 30 — The same crew is on-site. They are still processing the coal waste. All material is first stockpiled then remixed and as it is spread on hillside.

Sept 3 - 6 — There are a total of nine workers on-site now with the addition of one more operator. Continue delivering kiln dust, mixing, and stockpiling throughout the week. On September 3rd, more topsoil was being stripped to the east and stockpiled. On September 6th, the last of Transystems lime trucks arrive and dump on-site. All coal is now mixed and stockpiled. It is ready to be replaced in the excavated area.

Sept 9 - 13 — The D8N Cat, D9 Cat, 2-627 scrapers, and Cat 140G grader with a crew of eight people were used all week to spread treated coal.

Sept 16 — Seven workers are on-site. Treated coal is in place and being contoured to a more natural state. Trucks hauling calcium carbonate arrive on-site at 5:00 p.m. Trucks are dumped on the coversoil requiring treatment. The coversoil is mixed and spread over Phase II.

Sept 17 — Seven workers are on-site contouring and spreading cover soil. Rain makes it impossible to work the hillside so three crew members are off-site at 11:00 a.m. with the remaining four working on top grading and contouring. Two loads of calcium carbonate are mixed and spread.

Sept 18 — Seven workers are on-site. Stripping of topsoil from John Ridgway's land with three scrapers and a "Push-Cat" is being stockpiled on-site. The D8N Cat is cleaning contaminated soil from creek bottom. Two trucks of calcium carbonate arrive and are mixed and spread.

Sept 19 & 20 — Eight workers are on-site. The two days are spent hauling topsoil and cleaning creek bottom. On September 20th, a Cat EL300 excavator arrived on-site to clean creek. All topsoil is hauled and stockpiled. The haul road and topsoil pit are reclaimed and ready for seeding.

Sept 23 — Five workers on-site. Still cleaning creek bottom and adding new topsoil. Crew is now spreading a three inch topsoil base over Phase I.

Sept 24 — The same crew is on-site. Phase I and creek are complete. Now focusing all attention on Phase II. Still treating cover soil and creek bottom reject with calcium carbonate.

Sept 25 — The same crew is on-site. The day is spent spreading topsoil and mixing cover soil with calcium carbonate. The "fresh" topsoil is being depleted and the cover for Phase II will be six inches thick.

Sept 26 & 27 — Four crew members were mixing and spreading topsoil. On September 27th, a fertilizer truck arrived at 11:00 a.m. and spread fertilizer over the borrow area,

borrow road, Phase I, the creek bottom and a portion of Phase II. The borrow area and road were then seeded. Calcium carbonate truck arrived at 4:05 p.m; mixed and spread. Some of the machinery begins to move off-site.

Sept 30 — Three workers were on-site. The last load of calcium carbonate is mixed and spread. Phase I is seeded. The borrow area, haul road, and Phase I are straw mulched and crimped.

Oct 1 & 2 — Four workers are on-site fertilizing, seeding, mulching, and crimping. On October 2, continue to straw and crimp Phase II. All fences are repaired. The project comes to its conclusion at 5:30 p.m.

4.5 Quantities Used

All work items except mobilization were bid on a unit price basis. An on-site construction inspector measured items for payment and recorded load counts. Bid quantities were adjusted based on field measurements. Some unit prices changed during construction to account for changes in work requirements.

Item	Amount	Unit Cost
EROSION CONTROL PROTECTION (STRAW BALE DIKE OR SILT FENCE)	1,300 Ft	$6.00 per foot
PROVIDE WATER	1,709.4 KGaL	$31.52 per KGal
REMOVE, STOCKPILE & REPLACE COVERSOIL	5,560 CY	$1.75 per cubic-yard
DELIVER LIME KILN DUST FROM CONTINENTAL LIME TO PROJECT SITE	15,846.35 Tons	$22.00 per ton
EXCAVATE//NEUTRALIZE WITH 361.5 LB $CaCO_3$ PER CY/REPLACE WASTE	86,832 LCY or Ton	$3.10 per LCY or Ton
NEUTRALIZE COVER SOIL STRIPPED FROM COAL WASTE AREA WITH $CaCO_3$ At 60 TONS/ACRE	6.92 Acres	$3,200.00 per acre
ON-SITE BORROW AND PLACE 3-INCHES OF NATIVE COVERSOIL	2,900 CY	$3.00 per cubic-yard
IMPORT AND PLACE COVERSOIL	7,510 CY	$5.50 per cubic-yard
FERTILIZE, SEED, AND MULCH	22.0 Ac	$1,200.00 per acre

5. PAYMENT REQUESTS

5.1 Pay Request

Two pay requests were processed for this project as addressed under Section 3.8 above. Copies have been included in ATTACHMENT 3.

5.2 Cost per Site

SITE	ACREAGE	COST	COST/AC.
LEHIGH PHASE 1	3.49 Ac. (Revised)	$934,106.26	$267,652.22
LEHIGH PHASE 2	6.21 Ac.	$1,027,722.75	$165,494.81

5.3 Total Project Cost

The total project cost for this project which addressed approximately 50-percent of the total site remediation amounted to $1,070,002.38. Total engineering costs were 4.11-percent of the construction cost. An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4.

The MDEQ purchased 15,846.35 tons of lime kiln dust directly from Continental Lime for a price of $6.00 per ton at their plant in Townsend. This yields a material cost of $95,078.10. Shumaker Trucking and Excavating Contractors, Inc. was paid $932,644.65 for delivering the kiln dust, mixing it into the coal waste, and performing reclamation work. Consequently, the total construction cost for Lehigh Phase II was $1,027,722.75.

The engineering and design cost for the Lehigh Phase II reclamation bid package was $7,556.97 which included $635.50 of analysis by Dr Dollhopf. This is about 0.74-percent of the construction cost. The design work included developing plans and specifications and preparation of bid packages. Construction inspection and project management for the construction phase cost $30,907.24. Preparation of a final report cost $3815.42. Therefore, the total cost for construction management and inspection was $34,722.66 or about 3.4-percent of the construction cost. Construction management of Phase II included attending Prebid and Pre-Construction Conferences, responding to bidder questions, preparation of pay requests, and construction oversight. Total engineering costs for the project were $42,279.63.

6. PROJECT SUMMARY

6.1 Summary of Project

Spectrum Engineering was assigned the task of preparing plans and specifications for lime kiln dust haulage, and remediation of the acid generating coal wastes in the central part of the Lehigh Site. This was the second phase of an anticipated three phase project. Continental Lime's Indian Creek Plant at Townsend supplied lime kiln dust directly to MDEQ at a unit price of $6.00 per Ton FOB at the plant.

Lehigh Phase II was completed by Shumaker Trucking and Excavating in 1996. Due to the problems which had previously been experienced, the pug mill mixing and storage pit concepts were discarded. During this phase, 86,832 tons of coal waste was processed with lime kiln dust at an average neutralization rate of 180 tons of lime (100% calcium carbonate equivalence) per 1000 tons of coal waste or 182 tons of lime kiln dust per 1000 tons of coal waste. An estimate 87,000 loose cubic-yards of the material was treated. The neutralization rate was reduced for the second phase because weekly composite samples from the first phase indicated that the processed material had been consistently over limed. The change reduced the theoretical confidence level for having all possible samples completely neutralized.

Even though the liming rate was reduced significantly for Phase II, all of the samples taken during construction show that the area was still over-neutralized by a minimum of 78 tons per 1000 tons of coal slack. Weekly composite samples taken during construction show the following:

PERIOD	EXCESS LIME ADDED TO PROCESSED MATERIAL
Week of August 12-16	78 Tons per 1000 Tons of slack
Week of August 19-23	113Tons per 1000 Tons of slack
Week of August 26-30	83 Tons per 1000 Tons of slack
Week of Sept. 3-7	85 Tons per 1000 Tons of slack

Approximately 50-percent of the coal waste at Lehigh was neutralized during Phase II. The treated area covered 6.21 acres at the Lehigh Site. The supply and construction cost for the work completed during Phase II was $1,027,723. To date the total construction cost at the main Lehigh site stands at $1,961,829.

6.2 Site Condition after Completion

Approximately 9.70 acres at the Lehigh Site has been completed. The Phase I and Phase II areas contained approximately 76-percent of the total quantity of coal waste at the site. All areas which have been disturbed by construction were covered with a combination of imported coversoil and neutralized coversoil. The coversoil was seeded, fertilized, and mulched. During the project, the creek bottom was excavated to remove coal waste and silt. This area was regraded and covered with imported coversoil.

6.3 Maintenance or Follow-up

The revegetation progress should be monitored. The processed waste which has been replaced in Phase I and Phase II should be sampled at various depths to monitor the effectiveness of the project over time.

6.4 Construction Bid Package

Copies of the site plan drawings which were provided in the bid package are located in ATTACHMENT 5 at the back of the final report. These site plan drawings represent the reclamation engineering design (the plan from which the contractors bid the work).

6.5 As-Built Drawings

As-built drawings are located in ATTACHMENT 6.

7. COMMENTS/SUGGESTIONS

Due to the problems and costs that were experienced during the first phase of the Lehigh project, the process of neutralizing the coal slack was reconsidered for the Phase II Project. Lime neutralization rates were significantly reduced. Moreover contractors were encouraged to use their own ingenuity to develop a plan for delivering the materials and mixing the lime kiln dust and coal waste. The direct application of the kiln dust and the paddle-wheel mixing method that was used during Phase II was simple in concept. Because the mixing could be accomplished rapidly and easily, the work was completed in a much shorter time period than had been previously experienced and without the apparent lime losses. Base on the lime rate analysis in ATTACHMENT 7 which shows the excess neutralization of the processed waste, it may be appropriate to remove the wind loss factor when specifying the rates for Phase III of the project.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

A description of the photographs taken to document the work performed is found at the back of the final report under ATTACHMENT 8. The numbers on each picture correspond to the listing which precedes the photographs. The pictures are organized according to the following topics:

PICTURES	TOPIC
1-22	Contractor's Equipment
23	Pre-construction View
24-27	Salvage Coversoil
28	Silt Fence
29-95	Neutralize Coal Waste
96-102	Reclaim Creek Bottom
103-109	Coversoil Replacement
110-116	Revegetation
117	Post-construction View

ATTACHMENT 1

BID TABULATION

BID TABULATIONS				ENGINEER'S ESTIMATE		SHUMAKER TRUCKING & EXCAVATING CONTRACTORS, INC		M K WEEDEN CONSTRUCTION INC.		DONNES INC.	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	Each	MPDES Permit	550.00	650.00	650.00	650.00	650.00	550.00	650.00	650.00
2.	1	Lump	Mobilization	XXX	0.00	158,000.00	158,000.00	159603.00	159,603.00	370280.00	370,280.00
3.	1650	Foot	Erosion Control Protection (Straw bale dike or silt fence)		0.00	6.00	9,900.00	1.00	1,650.00	3.00	4,950.00
4.	130	KGAL	Provide Water		0.00	50.00	6,500.00	55.00	7,150.00	50.00	6,500.00
5.	10,200	C.Y.	Remove, Stockpile and replace coversoil		0.00	1.75	7,850.00	1.60	16,320.00	2.00	20,400.00
6.	16,000	Tons	Deliver lime kiln dust from Continental Lime to Project site		0.00	22.00	352,000.00	18.67	298,720.00	21.00	336,000.00
7.	16000	Tons	Excavate 32,720 CY of coal waste, neutralize with 16000 tons of lime kiln dust at a design rate of 150-200 tons (actual 170-224 tons) of lime kiln dust per 1900 tons of coal waste and replace		0.00	17.00	272,000.00	27.66	442,560.00	19.00	304,000.00
8.	7.1	Acre	Neutralize coversoil stripped from coal waste area with $CaCO_3$ at a 60 ton/acre rate		0.00	1200.00	12,720.00	2141.00	15,201.10	5400.00	38,340.00
9.	2,900	CY	On site borrow and place 3 inches of native coversoil		0.00	3.00	8,700.00	1.25	3,625.00	2.00	5,800.00
10.	10.9	Acre	Fertilize, seed and mulch		0.00	1200.00	13,080.00	750.00	8,175.00	1200.00	13,080.00
Total				650.00	0.00	0.00	841,400.00		953,654.10		1,100,000.00

2.1 PROPOSAL

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Price
1.	1	EACH	MPDES PERMIT	$650.00	$ 650
2.	1	LUMP SUM	MOBILIZATION	XXXXX	$ 110,000
3.	1,650	FOOT	EROSION CONTROL PROTECTION (STRAW BALE DIKE OR SILT FENCE)	3.20	$ 5,280
4.	130	KGAL	PROVIDE WATER	60.00	$ 7,800
5.	10,200	CY	REMOVE, STOCKPILE AND REPLACE COVERSOIL	1.75	$ 17,850
6.	16,000	TONS	DELIVER LIME KILN DUST FROM CONTINENTAL LIME TO PROJECT SITE	20.00	$ 320,000
7.	16,000	TONS	EXCAVATE 82,720 CY OF COAL WASTE, NEUTRALIZE WITH 16,000 TONS OF LIME KILN DUST AT A DESIGN RATE OF 150-200 TONS (ACTUAL 170-224 TONS) OF LIME KILN DUST PER 1,000 TONS OF COAL WASTE, & REPLACE	26.00	$ 416,000
8.	7.1	ACRE	NEUTRALIZE COVERSOIL STRIPPED FROM COAL WASTE AREA WITH $CaCO_3$ AT A 60 TON/ACRE RATE	3400.00	$ 24,140
9.	2,900	CY	ON-SITE BORROW AND PLACE 3-INCHES OF NATIVE COVERSOIL	2.00	$ 5,800
10.	10.9	ACRE	FERTILIZE, SEED & MULCH	1000.00	$ 10,900

TOTAL: $ 918,420

Nine hundred and eighteen thousand, four hundred and twenty dollars
(Price in Words)

Firm Name: Spectrum Eng. Estimate

ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: Lehigh Phase II Project

MT DEQ-AMRB: 94-002

CONTRACT DATE:

OWNER: Department of Environmental Quality, Abandoned Mine Reclamation Bureau

CONTRACTOR: Shumaker Trucking and Excavating

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
4	Additional water required through August at a negotiated reduced cost of $32,766.00 (1,092.2 Kgal x $30/Kgal).					32,766.00	32,766.00

Original Contract Price	$ 841,400.00
Current Contract Price Adjusted by Previous Change Order	$ 841,400.00
Cost this Change Order (+ or -)	+ $ 32,766.00
New Contract Price including this Change Order	$ 874,166.00

CHANGE ORDER

ORDER NO. 2 - Final

PROJECT TITLE: Lehigh Phase II Project

MT DEQ-AMRB: 94-002

CONTRACT DATE:

OWNER: Department of Environmental Quality, Abandoned Mine Reclamation Program

CONTRACTOR: Shumaker Trucking and Excavating

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
3	Erosion control silt fence went from 1650 feet to 1300 feet at a cost change of -$2100 (350 feet x $6/foot)					(2,100.00)	(2,100.00)
6	Remove & replace coversoil went from 10200 CY to 5560 CY at a cost change of -$8,120 (4640 CY x $1.75/CY).					(2,100.00)	(8,120.00)
6	Deliver lime kiln dust went from 16000 tons to 15846.35 tons at a cost change of -$3380.30 (153.65 tons x $22/ton).					(3,380.30)	(3,380.30)
7	Incorporate lime kiln dust went from 16000 to 15846.35 tons at a cost change of -$2612.05 (153.65 tons x $17/ton).					(2,612.05)	(2,612.05)
8	Neutralize coversoil went from 7.1 acres to 6.92 acres at a cost change of -$576 (0.18 acres x $3200/ac).					(576.00)	(576.00)
10.	Fertilize, Seed & Mulch went from 10.9 acres to 22 acres at a cost change of $13,320 (11.1 acres x $1200/acre)					13,320.00	13,320.00
CO #1	Add. water required at a cost change of $14,616 (487.2 Kgal x $30/Kgal)					14,616.00	14,616.00
CO #2	Clean-out ditch and behind Phase I silt fence at a cost of $6,026 (see descipt.)					6,026.00	6,026.00
CO #2	Inportation of coversoil at a cost of $41,305 (see description)					41,305.00	41,305.00

Original Contract Price	$ 841,400.00
Current Contract Price Adjusted by Previous Change Order	$ 874,166.00
Cost this Change Order (+ or -)	+ $ 58,478.65
New Contract Price including this Change Order	$ 932,644.65

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

Description of Change:

Item 3 silt fence was final quantity adjustment to actual quantity used. Item 5 coversoil was final quantity adjustment to account for a lack of suitable coversoil to remove and replace. Item 6 deliver lime and Item 7 incorporate lime was final quantity adjustments to actual quantity of lime hauled and incorporated. Item 8 neutralize coversoil was final quantity adjustment for measured acreage limed. Item 10 fertilize, seed & mulch went up due to the decision to reapply coversoil and replant Phase I, to revegetate the road below Phase I along the creek, reclaim the creek bank and the coversoil borrow area. The total acreage went to 22.0 acres (up from 10.9 acres).

Additional water was used since Pay Request #1. A reduced price was negotiated as part of Change Order #1 of $30/Kgal. The water used since Pay Request #1 is 487.2 Kgal.

Shumaker Trucking was requested to excavate out the creek bottom and incorporate this material into the coal slack to be limed. This was on a time-and-materials basis not to exceed $9000. The acutal cost is as follows: Cat 980 C loader: 7 hours x $150/hour ($1050), Cat D8N dozer: 14 hours x $175/hour ($1400), EL 300 excavator: 8 hours x $175/hour ($2450) plus transport $563 each way x 2 ($1126) for a total of $6,026.

The landowner specifically requested that we do not use the designated coversoil borrow area. This necessitated that Shumaker secure a different source. This source was found further way and the coversoil had to be purchased. A price of $5.50 per cubic yard was negotiated due to the further haul and coversoil cost for all material requested above the 2,900 cubic yards required in Bid Item #9. A total of 10,410 cubic yards were hauled in (2,900 CY for Item #9) and 7,510 CY to replace the material not available under Item #5. This added a cost of $41,305 (7,510 CY x $5.50/CY).

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $ 58,478.65 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $ 58,478.65 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

Gordon D McManus bb

GORDON D. MCMANUS

FLYNN INSURANCE AGENCY

BOX 711, GREAT FALLS, MT 59403

SURETY

FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: John D Leaf

JOHN D. LEAF Seal ATTORNEY-IN-FACT

Recommended by: Shumaker Trucking and Excavating Eugene A Shumaker 11-22-96

Contractor Date

Accepted by: Spectrum Engineering William C McLeod 11/21/96

Engineer Date

Approved by: Vic R Anderson 12-6-96

Owner Date

oh J Ahy 12/6/96

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. 1

FROM 08/05/1996 TO 09/01/1996

PROJECT TITLE: LEHIGH PHASE II PROJECT

LOCATION: JUDITH BASIN COUNTY MT DEQ-AMRB: 94-002

NAME OF CONTRACTOR: SHUMAKER TRUCKING AND EXCAVATING

ADDRESS: P.O. BOX 1442, GREAT FALLS, MONTANA 59403

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 841,400.00
Change Order No. 1	$ 32,766.00	
Change Order No. _____	$ _____	
Change Order No. _____	$ _____	
Amount of Approved Change Order(s)		$ 32,766.00
TOTAL CONTRACT AMOUNT		$ 874,166.00

Pay Request No.	Amount of Request
1	$544,281.78

Total Contract Amount Completed to Date	$ 604,757.53
Less Retainage (10 %)	$ 60,475.75
TOTAL AMOUNT EARNED TO DATE	$ 544,281.78
Less Previous Payments	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 544,281.78
Less 1% Tax	$ 5,442.82
TOTAL DUE CONTRACTOR	$ 538,838.96

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

SHUMAKER TRUCKING AND EXCAVATING
Contractor

By _____

Date _____

RECOMMENDED BY:

SPECTRUM ENGINEERING INC.
Engineer

By _____

Date _____

APPROVED BY:

DEPARTMENT OF ENVIRONMENTAL QUALITY,
ABANDONED MINE RECLAMATION BUREAU
Owner

By _____

Date _____

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	MPDES Permit	1 Each	650.00	0	1	1.00	650.00	650.00
2.	Mobilization	1 LS	38,000.00	0	0.61	0.61	84,140.00	84,140.00
3.	Erosion Control Silt Fence	1650 Foot	6.00	0	1000	1000.00	6,000.00	6,000.00
4.	Provide Water	130 Kgal	50.00	0	130	130.00	6,500.00	6,500.00
	Provide Water - Extra (see change order)	0 Kgal	30.00	0	1092.2	1092.20	32,766.00	32,766.00
5.	Remove, Stockpile & Replace Coversoil	10,200 Cu Yds	1.75	0	5,560 (@ $1)	5,560.00 (@ $1)	5,560.00	5,560.00
6.	Deliver Lime Kiln Dust to the Site	16,000 Tons	22.00	0	12029.27	12029.27	264,643.94	264,643.94
7.	Incorporate Lime Kiln Dust with Coal Slack	16,000 Tons	17.00	0	12029.27	12029.27	204,497.59	204,497.59
8.	Neutralize Coversoil	7.1 AC	3,200.00	0	0	0	0.00	0.00
9.	Coversoil Borrow	2,900 CY	3.00	0	0	0	0.00	0.00
10.	Fertilize, Seed & Mulch	10.9 AC	1,200.00	0	0	0	0.00	0.00
	Change Order 1 - Extra 1,092.2 Kgal of water required (see Item 4 above)							
	Materials on Site (Attach Schedule)	--	--	$	$	--0.00	$0.00	$0.00
TOTALS							604,757.53	604,757.53

FOOTNOTE:

Item 4-Provide Water: This item was estimated at 130 Kgal. The actual quantity required turned out to be considerably more since the coal was dry this year (completely saturated during Phase I in 1995). This additional quantity (1,092.2 Kgal) through the end of August was accounted for in Change Order Number 1.

Item 5-Remove, Stockpile & Replace Coversoil: This item includes two components. The first is removal and stockpiling (estimated at $1/cy) and the second is replacement (estimated at $0.75/cy).

All of the quantities are shown on the backup sheets attached.

PAYMENT REQUEST NO. 2 - Final

FROM 09/01/1996 TO 10/03/1996

PROJECT TITLE: LEHIGH PHASE II PROJECT

LOCATION: JUDITH BASIN COUNTY MT DEQ-AMR: 94-002

NAME OF CONTRACTOR: SHUMAKER TRUCKING AND EXCAVATING

ADDRESS: P.O. BOX 1442, GREAT FALLS, MONTANA 59403

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 841,400.00
Change Order No. 1	$ 32,766.00	
Change Order No. 2	$ 58,478.65	
Change Order No.	$	
Amount of Approved Change Order(s)		$ 91,244.65
TOTAL CONTRACT AMOUNT		$ 932,644.65

Pay Request No.	Amount of Request
1	$544,281.78
2	379,036.42

Total Contract Amount Completed to Date	$ 932,644.65
Less Retainage (1 %)	$ 9,326.45
TOTAL AMOUNT EARNED TO DATE	$ 923,318.20
Less Previous Payments	$ 544,281.78
AMOUNT DUE THIS PAYMENT	$ 379,036.42
Less 1% Tax	$ 3,790.36
TOTAL DUE CONTRACTOR	$ 375,246.06

12/6/96

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

SHUMAKER TRUCKING AND EXCAVATING
Contractor

By Eugene L Shumaker

Date 11-22-96

RECOMMENDED BY:

SPECTRUM ENGINEERING INC.
Engineer

By William C Mack

Date 11/21/96

APPROVED BY:

DEPARTMENT OF ENVIRONMENTAL QUALITY,
ABANDONED MINE RECLAMATION PROGRAM
Owner

By Vic R Anderson

Date

RESP. CNTR.
OBJ. EXP.
APPROVAL
DATE

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	MPDES Permit	1 Each	650.00	1	0	1.00	650.00	0.00
2.	Mobilization	1 LS	138,000.00	0.61	0.39	1.00	138,000.00	53,860.00
3.	Erosion Control Silt Fence	1650 Foot	6.00	1000	300	1300.00	7,800.00	1,800.00
4.	Provide Water	130 Kgal	50.00	130	0	130.00	6,500.00	0.00
CO #1	Change Order 1 - Provide Extra Water - see change orders #1 & #2	0 Kgal	30.00 neg.	1092.2	487.2	1579.40	47,382.00	14,616.00
5.	Remove, Stockpile & Replace Coversoil	10,200 Cu Yds	1.75	5560 (@ $1)	5560 @ $0.75	5560.00	9,730.00	4,170.00
6.	Deliver Lime Kiln Dust to the Site	16,000 Tons	22.00	12029.27	3817.08	15846.35	348,619.70	83,975.76
7.	Incorporate Lime Kiln Dust with Coal Slack	16,000 Tons	17.00	12029.27	3817.08	15846.35	269,387.95	64,890.36
8.	Neutralize Coversoil	7.1 AC	3,200.00	0	6.92	6.92	22,144.00	22,144.00
9.	Coversoil Borrow	2,900 CY	3.00	0	2900	2900	8,700.00	8,700.00
10.	Fertilize, Seed & Mulch	10.9 AC	1,200.00	0	22.0	22.0	26,400.00	26,400.00
CO #2	Change Order 2 - clean-out ditch & behind Phase I silt fence	0	T & M	0	1	1	6,026.00	6,026.00
CO #2	Change Order 2 - import coversoil	0	$5.50 neg.	0	7510	7510	41,305.00	41,305.00
	Materials on Site (Attach Schedule)	--	--	$	$	--0.00	$0.00	$0.00
TOTALS							932,644.65	327,887.12

FOOTNOTE:

All of the quantities are shown on the backup sheets attached.

LEHIGH PHASE II						
CONSTRUCTION QUANTITIES BY DAY						
FOR WATER, COVERSOIL AND SILT FENCE						
	PROVIDE	TOTAL	COVER-	TOTAL	SILT	TOTAL
	WATER	WATER	SOIL (CY)	COVER-	FENCE	SILT
DAY	BY DAY	(KGAL)	BY DAY	SOIL (CY)	BY DAY	FENCE (FT)
5-aug		0.0	320	320	400	400
6-aug		0.0	3420	3740	300	700
7-aug	58.8	58.8	1360	5100	300	1000
8-aug	63.0	121.8	460	5560		1000
9-aug	67.2	189.0				1000
12-aug	75.6	264.6				1000
13-aug	67.2	331.8				1000
14-aug	71.4	403.2				1000
15-aug	71.4	474.6				1000
16-aug	71.4	546.0				1000
19-aug	63.0	609.0				1000
20-aug	79.8	688.8				1000
21-aug	75.6	764.4				1000
22-aug	71.4	835.8				1000
23-aug	67.2	903.0				1000
26-aug	84.0	987.0	IMPORTED	TOTAL		1000
27-aug	71.4	1058.4	COVERSOIL	IMPORT (CY)		1000
28-aug	54.6	1113.0				1000
29-aug	50.4	1163.4				1000
30-aug	58.8	1222.2				1000
3-sep	58.8	1281.0	1000	1000	300	1300
4-sep	71.4	1352.4				
5-sep	37.8	1390.2				
6-sep	46.2	1436.4				
9-sep	50.4	1486.8				
10-sep	58.8	1545.6				
11-sep	37.8	1583.4				
12-sep	88.2	1671.6				
13-sep	37.8	1709.4				
18-sep			2880	3880		
19-sep			4060	7940		
20-sep			2470	10410		
	ITEM #4	130.0 KGAL	ITEM #9	2900 CY		1300 FEET
	CO #1	1092.2 KGAL	CO #2	7510 CY		ITEM #3
	CO #2	487.2 KGAL				

LEHIGH PHASE II CALCIUM CARBONATE QUANTITIES FROM MONTANA LIMESTONE COMPANY						
					Lime	Cum. Tons
Date	B/L #	Gross	Tare	Net	Tons	of Lime
9/16/96	8424	108950	44450	64500	32.25	32.25
	8425	105600	45250	60350	30.18	62.43
9/17/96	8428	106650	46100	60550	30.28	92.70
	8429	108100	46000	62100	31.05	123.75
9/18/96	8430	107650	46450	61200	30.60	154.35
	8431	107550	46550	61000	30.50	184.85
9/24/96	8435	109700	45500	64200	32.10	216.95
9/25/96	8439	108400	45850	62550	31.28	248.23
9/26/96	8442	107800	46000	61800	30.90	279.13
	8443	108000	45350	62650	31.33	310.45
9/27/96	8446	109550	46550	63000	31.50	341.95
	8447	109850	45750	64100	32.05	374.00
9/30/96	8448	109500	46000	63500	31.75	405.75
	8449	109500	46450	63050	31.53	437.28
437.28 BULK TONS DELIVERED X 95% PURITY = 415.42 EFFECTIVE TONS						
415.42 TONS / 60 TONS/ACRE = 6.92 ACRES NEUTRALIZED						

LEHIGH PHASE II

LIME APPLICATION AND QUANTITIES USED OR MIXED

Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Lime Tons	Cum. Tons of Lime	Source	Lime Mix Rate	Tons of Coal Mixed	Cum. Ton of Coal
8/6/96	8:30	Shumaker	143	54464	104620	44140	60480	30.24	30.24	Silo	170	178	178
	8:33	Shumaker	139	54465	94240	44540	49700	24.85	55.09	Silo	170	146	324
8/7/96	8:53	Shumaker		54466	104220	44180	60040	30.02	85.11	Silo	170	177	501
8/8/96	8:20	Shumaker		54467	107100	44240	62860	31.43	116.54	Silo	170	185	686
8/9/96	7:42	Shumaker	143	54468	107000	44260	62740	31.37	147.91	Silo	170	185	870
	7:44	Shumaker	139	54469	105880	44660	61220	30.61	178.52	Silo	170	180	1050
8/12/96	5:52	TransSys.	9345	54688	126100	38860	87240	43.62	222.14	Pile	180	242	1292
	6:35	TransSys.	9329	54686	127680	38860	88820	44.41	266.55	Pile	180	247	1539
	6:50	TransSys.	9319	54685	123420	38860	84560	42.28	308.83	Pile	180	235	1774
	8:28	TransSys.	9317	54690	126800	38860	87940	43.97	352.80	Silo	170	259	2033
	6:25	TransSys.	9307	54687	125700	38860	86840	43.42	396.22	Silo	170	255	2288
	5:48	TransSys.	9309	54689	125000	38860	86140	43.07	439.29	Pile	180	239	2527
	5:46 PM	TransSys.	9319	54640	123020	38860	84160	42.08	481.37	Pile	180	234	2761
	5:40 PM	TransSys.	9341	54639	122320	38860	83460	41.73	523.10	Pile	180	232	2993
	5:20 PM	TransSys.	9307	54637	118640	38860	79780	39.89	562.99	Pile	180	222	3215
	4:38 PM	TransSys.	9303	54629	124240	38860	85380	42.69	605.68	Pile	180	237	3452
	4:21 PM	TransSys.	9309	54635	113380	38860	74520	37.26	642.94	Pile	180	207	3659
	4:16 PM	TransSys.	9345	54636	119940	38860	81080	40.54	683.48	Pile	180	225	3884
	ALL							504.96					
8/13/96	6:55	TransSys.	9341	54648	115800	38860	76940	38.47	721.95	Pile	180	214	4098
	5:52	TransSys.	9345	54642	124220	38860	85360	42.68	764.63	Pile	180	237	4335
	6:15	TransSys.	9329	54638	115580	38860	76720	38.36	802.99	Pile	180	213	4548
	6:52	TransSys.	9319	54646	119020	38860	80160	40.08	843.07	Pile	180	223	4771
	5:55	TransSys.	9309	54644	122840	38860	83980	41.99	885.06	Pile	180	233	5004
	7:16	TransSys.	9311	54650	123440	38860	84580	42.29	927.35	Pile	180	235	5239
	6:12	TransSys.	9307	54645	122600	39960	82640	41.32	968.67	Pile	180	230	5468
	7:20	TransSys.	9303	54641	121080	38860	82220	41.11	1009.78	Pile	180	228	5697
	3:47 PM	TransSys.	9309	54702R	119360	38860	80500	40.25	1050.03	Pile	180	224	5920
	3:57 PM	TransSys.	9345	54643	120720	38860	81860	40.93	1090.96	Pile	180	227	6148
	4:22 PM	TransSys.	9307	54704	121920	38860	83060	41.53	1132.49	Silo	170	244	6392
	4:29 PM	TransSys.	9329	54703	121220	38860	82360	41.18	1173.67	Pile	180	229	6621
	4:51 PM	TransSys.	9319	54647	122020	38860	83160	41.58	1215.25	Pile	180	231	6852
	4:54 PM	TransSys.	9341	54651	120120	38860	81260	40.63	1255.88	Pile	180	226	7078
	5:22 PM	TransSys.	9303	54654	125320	38860	86460	43.23	1299.11	Pile	180	240	7318
	ALL							615.63					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
8/14/96	5:45	TransSys.	9345	54691	122260	38860	83400	41.70	1340.81	Pile	180	232	7549
	6:09	TransSys.	9329	54693	121700	38860	82840	41.42	1382.23	Pile	180	230	7780
	6:48	TransSys.	9319	54694	122100	38860	83240	41.62	1423.85	Pile	180	231	8011
	6:57	TransSys.	9341	54695	119700	38860	80840	40.42	1464.27	Pile	180	225	8235
	8:13	TransSys.	9307	54692	124680	38860	85820	42.91	1507.18	Pile	180	238	8474
	8:18	TransSys.	9311	54653	124740	38860	85880	42.94	1550.12	Pile	180	239	8712
	8:23	TransSys.	9303	54696	123340	38860	84480	42.24	1592.36	Pile	180	235	8947
	8:27	TransSys.	9309	54652	125380	38860	86520	43.26	1635.62	Pile	180	240	9187
	3:48 PM	TransSys.	9345	54697	116740	38860	77880	38.94	1674.56	Silo	170	229	9416
	4:39 PM	TransSys.	9329	54698	126700	38860	87840	43.92	1718.48	Silo	170	258	9675
	4:57 PM	TransSys.	9341	54700	121640	38860	82780	41.39	1759.87	Pile	180	230	9905
	5:00 PM	TransSys.	9319	54699	123360	38860	84500	42.25	1802.12	Pile	180	235	10139
	5:55 PM	TransSys.	9307	54701	125260	38860	86400	43.20	1845.32	Pile	180	240	10379
	6:00 PM	TransSys.	9311	54709	121780	38860	82920	41.46	1886.78	Pile	180	230	10610
	6:22 PM	TransSys.	9309	54711	125200	38860	86340	43.17	1929.95	Pile	180	240	10849
	6:50 PM	TransSys.	9303	54714	120700	38860	81840	40.92	1970.87	Pile	180	227	11077
	ALL							671.76					
8/15/96	5:35	TransSys.	9345	54712	123420	38860	84560	42.28	2013.15	Pile	180	235	11312
	5:38	TransSys.	9309	54713	120760	38860	81900	40.95	2054.10	Pile	180	228	11539
	6:00	TransSys.	9307	54708	122560	38860	83700	41.85	2095.95	Pile	180	233	11772
	6:03	TransSys.	9329	54705	122740	38860	83880	41.94	2137.89	Pile	180	233	12005
	6:36	TransSys.	9319	54707	120420	38860	81560	40.78	2178.67	Pile	180	227	12231
	6:45	TransSys.	9341	54706	121640	38860	82780	41.39	2220.06	Pile	180	230	12461
	7:07	TransSys.	9303	54715	122420	38860	83560	41.78	2261.84	Pile	180	232	12693
	7:16	TransSys.	9753	54723	120940	38860	82080	41.04	2302.88	Pile	180	228	12921
	3:36 PM	TransSys.	9309	54724	119840	38860	80980	40.49	2343.37	Silo	170	238	13160
	3:54 PM	TransSys.	9345	54716	120840	38860	81980	40.99	2384.36	Pile	180	228	13387
	4:03 PM	TransSys.	9329	54719	122620	38860	83760	41.88	2426.24	Pile	180	233	13620
	4:06 PM	TransSys.	9307	54718	121320	38860	82460	41.23	2467.47	Pile	180	229	13849
	4:17 PM	TransSys.	9319	54720	125440	38860	86580	43.29	2510.76	Pile	180	241	14089
	4:19 PM	TransSys.	9341	54721	121400	38860	82540	41.27	2552.03	Pile	180	229	14319
	4:51 PM	TransSys.	9311	54731	124000	38860	85140	42.57	2594.60	Pile	180	237	14555
	4:47 PM	TransSys.	9303	54722	121240	38860	82380	41.19	2635.79	Pile	180	229	14784
	ALL							664.92					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
8/16/96	5:32	Trans.Sys.	9345	54717	123440	38860	84580	42.29	2678.08	Pile	180	235	15019
	5:36	Trans.Sys.	9309	54725	126080	38860	87220	43.61	2721.69	Pile	180	242	15261
	5:54	Trans.Sys.	97107	54727	124480	38860	85620	42.81	2764.50	Pile	180	238	15499
	5:57	Trans.Sys.	9789	54726	122960	38860	84100	42.05	2806.55	Pile	180	234	15733
	6:44	Trans.Sys.	9319	54728	125580	38860	86720	43.36	2849.91	Pile	180	241	15974
	6:48	Trans.Sys.	9755	54729	125240	38860	86380	43.19	2893.10	Pile	180	240	16214
	7:12	Trans.Sys.	9753	54740	123920	38860	85060	42.53	2935.63	Pile	180	236	16450
	7:16	Trans.Sys.	9791	54730	120580	38860	81720	40.86	2976.49	Pile	180	227	16677
	2:55PM	Trans.Sys.	97107	54736	121880	38860	83020	41.51	3018.00	Pile	180	231	16907
	3:15PM	Trans.Sys.	9345	54733	121740	38860	82880	41.44	3059.44	Pile	180	230	17138
	3:21PM	Trans.Sys.	9309	54735	123080	38860	84220	42.11	3101.55	Silo	170	248	17385
	3:59PM	Trans.Sys.	9789	54737	125040	38860	86180	43.09	3144.64	Pile	180	239	17625
	4:19PM	Trans.Sys.	9791	54742	126000	38860	87140	43.57	3188.21	Pile	180	242	17867
	4:28PM	Trans.Sys.	9753	54741	121880	38860	83020	41.51	3229.72	Pile	180	231	18097
	4:33PM	Trans.Sys.	9755	54739	124100	38860	85240	42.62	3272.34	Pile	180	237	18334
	4:36PM	Trans.Sys.	9313	54738	124560	38860	85700	42.85	3315.19	Pile	180	238	18572
	ALL							679.40					
8/19/96	5:34	Trans.Sys.	9757	54744	121760	38860	82900	41.45	3356.64	Pile	180	230	18803
	5:37	Trans.Sys.	9705	54745	121620	38860	82760	41.38	3398.02	Pile	180	230	19032
	5:57	Trans.Sys.	9789	54746	121760	38860	82900	41.45	3439.47	Pile	180	230	19263
	6:01	Trans.Sys.	97107	54743	122920	38860	84060	42.03	3481.50	Pile	180	234	19496
	6:43	Trans.Sys.	9799	54750	121500	38860	82640	41.32	3522.82	Pile	180	230	19726
	6:47	Trans.Sys.	9755	54749	125080	38860	86220	43.11	3565.93	Pile	180	240	19965
	6:50	Trans.Sys.	9797	54756	128380	38860	89520	44.76	3610.69	Pile	180	249	20214
	7:07	Trans.Sys.	9791	54747	121280	38860	82420	41.21	3651.90	Pile	180	229	20443
	7:10	Trans.Sys.	9753	54748	125500	38860	86640	43.32	3695.22	Pile	180	241	20684
	2:53PM	Trans.Sys.	9757	54751	123640	38860	84780	42.39	3737.61	Silo	170	249	20933
	2:59PM	Trans.Sys.	97105	54823	121360	38860	82500	41.25	3778.86	Silo	170	243	21176
	3:24PM	Trans.Sys.	97107	54753	124380	38860	85520	42.76	3821.62	Pile	180	238	21413
	3:42PM	Trans.Sys.	9789	54752	125000	38860	86140	43.07	3864.69	Pile	180	239	21652
	4:23PM	Trans.Sys.	9791	54758	119880	38860	81020	40.51	3905.20	Pile	180	225	21877
	4:29PM	Trans.Sys.	9753	54819	125460	38860	86600	43.30	3948.50	Pile	180	241	22118
	4:32PM	Trans.Sys.	97101	54821	116580	38860	77720	38.86	3987.36	Pile	180	216	22334
	ALL							672.17					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED

Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Lime Tons	Cum. Tons of Lime	Source	Lime Mix Rate	Tons of Coal Mixed	Cum. Ton of Coal
8/20/96	5:23	Trans.Sys.	9757	54743	124660	38860	85800	42.90	4030.26	Pile	180	238	22572
	5:26	Trans.Sys.	9705	54825	122200	38860	83340	41.67	4071.93	Pile	180	232	22804
	5:56	Trans.Sys.	9797	54757	124380	38860	85520	42.76	4114.69	Pile	180	238	23041
	5:59	Trans.Sys.	9789	54829	123400	38860	84540	42.27	4156.96	Pile	180	235	23276
	6:13	Trans.Sys.	97107	54831	125720	38860	86860	43.43	4200.39	Pile	180	241	23517
	6:40	Trans.Sys.	9755	54755	123080	38860	84220	42.11	4242.50	Pile	180	234	23751
	6:43	Trans.Sys.	9799	54754	123140	38860	84280	42.14	4284.64	Pile	180	234	23985
	6:52	Trans.Sys.	9753	54820	121240	38860	82380	41.19	4325.83	Pile	180	229	24214
	6:54	Trans.Sys.	97101	54822	117500	38860	78640	39.32	4365.15	Pile	180	218	24433
	2:56PM	Trans.Sys.	9791	54819	121940	38860	83080	41.54	4406.69	Silo	170	244	24677
	2:59PM	Trans.Sys.	9757	54824	100620	38860	61760	30.88	4437.57	Pile	180	172	24849
	3:08PM	Trans.Sys.	97105	54826	98620	38860	59760	29.88	4467.45	Pile	180	166	25015
	3:31PM	Trans.Sys.	9789	54830	98480	38860	59620	29.81	4497.26	Pile	180	166	25180
	3:44PM	Trans.Sys.	9797	54827	110440	38860	71580	35.79	4533.05	Pile	180	199	25379
	5:29PM	Trans.Sys.	9753	54835	124420	38860	85560	42.78	4575.83	Pile	180	238	25617
	5:33PM	Trans.Sys.	97107	54832	118640	38860	79780	39.89	4615.72	Pile	180	222	25838
	5:37PM	Trans.Sys.	9799	54834	119320	38860	80460	40.23	4655.95	Pile	180	224	26062
	5:40PM	Trans.Sys.	97101	54836	120440	38860	81580	40.79	4696.74	Pile	180	227	26288
	ALL							709.38					
8/21/96	5:17	Trans.Sys.	9757	54838	121080	38860	82220	41.11	4737.85	Pile	180	228	26517
	5:20	Trans.Sys.	9705	54839	120820	38860	81960	40.98	4778.83	Pile	180	228	26745
	5:49	Trans.Sys.	9789	54840	122900	38860	84040	42.02	4820.85	Pile	180	233	26978
	5:51	Trans.Sys.	9797	54841	124400	38860	85540	42.77	4863.62	Pile	180	238	27216
	5:54	Trans.Sys.	97107	54843	120680	38860	81820	40.91	4904.53	Pile	180	227	27443
	6:32	Trans.Sys.	9799	54844	123280	38860	84420	42.21	4946.74	Pile	180	235	27677
	6:36	Trans.Sys.	9755	54833	122720	38860	83860	41.93	4988.67	Pile	180	233	27910
	6:41	Trans.Sys.	9791	54837	110460	38860	71600	35.80	5024.47	Pile	180	199	28109
	6:53	Trans.Sys.	9753	54842	124280	38860	85420	42.71	5067.18	Pile	180	237	28346
	6:55	Trans.Sys.	79101	54845	121840	38860	82980	41.49	5108.67	Pile	180	231	28577
	3:30PM	Trans.Sys.	9757	54856	119020	38860	80160	40.08	5148.75	Silo	170	236	28813
	3:40PM	Trans.Sys.	9789	54848	116580	38860	77720	38.86	5187.61	Pile	180	216	29029
	4:01PM	Trans.Sys.	9797	54849	123060	38860	84200	42.10	5229.71	Pile	180	234	29262
	4:11PM	Trans.Sys.	97105	54847	121660	38860	82800	41.40	5271.11	Pile	180	230	29492
	4:19PM	Trans.Sys.	97107	54850	125320	38860	86460	43.23	5314.34	Pile	180	240	29733
	4:22PM	Trans.Sys.	9799	54851	122920	38860	84060	42.03	5356.37	Pile	180	234	29966
	4:47PM	Trans.Sys.	9755	54852	122960	38860	84100	42.05	5398.42	Pile	180	234	30200
	5:03PM	Trans.Sys.	9791	54853	122460	38860	83600	41.80	5440.22	Pile	180	232	30432
	5:05PM	Trans.Sys.	9753	54854	122820	38860	83960	41.98	5482.20	Pile	180	233	30665
	5:09PM	Trans.Sys.	97101	54855	126100	38860	87240	43.62	5525.82	Pile	180	242	30908
	ALL							829.08					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED

Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Lime Tons	Cum. Tons of Lime	Source	Lime Mix Rate	Tons of Coal Mixed	Cum. Ton of Coal
8/22/96	5:36	Trans.Sys.	9757	54759	121540	38860	82680	41.34	5567.16	Pile	180	230	31137
	5:39	Trans.Sys.	97105	54858	126200	38860	87340	43.67	5610.83	Pile	180	243	31380
	5:46	Trans.Sys.	9797	54869	124680	38860	85820	42.91	5653.74	Pile	180	238	31618
	5:52	Trans.Sys.	97107	54861	124520	38860	85660	42.83	5696.57	Pile	180	238	31856
	5:59	Trans.Sys.	9799	54862	119340	38860	80480	40.24	5736.81	Pile	180	224	32080
	6:02	Trans.Sys.	9755	54864	123940	38860	85080	42.54	5779.35	Pile	180	236	32316
	6:05	Trans.Sys.	9789	54857	122020	38860	83160	41.58	5820.93	Pile	180	231	32547
	6:08	Trans.Sys.	9791	54865	123720	38860	84860	42.43	5863.36	Pile	180	236	32783
	6:52	Trans.Sys.	9753	54866	122940	38860	84080	42.04	5905.40	Pile	180	234	33016
	6:54	Trans.Sys.	79101	54867	125140	38860	86280	43.14	5948.54	Pile	180	240	33256
	3:01PM	Trans.Sys.	97105	54859	122180	38860	83320	41.66	5990.20	Silo	170	245	33501
	3:21PM	Trans.Sys.	97101	54871	122020	38860	83160	41.58	6031.78	Silo	170	245	33746
	3:37PM	Trans.Sys.	9757	54868	126040	38860	87180	43.59	6075.37	Pile	180	242	33988
	3:42PM	Trans.Sys.	9783	54881	123260	38860	84400	42.20	6117.57	Pile	180	234	34222
	3:45PM	Trans.Sys.	9755	54873	121880	38860	83020	41.51	6159.08	Pile	180	231	34453
	3:53PM	Trans.Sys.	9797	54870	124740	38860	85880	42.94	6202.02	Pile	180	239	34691
	4:08PM	Trans.Sys.	9799	54872	122700	38860	83840	41.92	6243.94	Pile	180	233	34924
	4:11PM	Trans.Sys.	9789	54874	123620	38860	84760	42.38	6286.32	Pile	180	235	35160
	4:42PM	Trans.Sys.	9753	54876	123540	38860	84680	42.34	6328.66	Pile	180	235	35395
	4:45PM	Trans.Sys.	97101	54877	124120	38860	85260	42.63	6371.29	Pile	180	237	35632
	ALL							845.47					
8/23/96	5:38	Trans.Sys.	9757	54846	126460	38860	87600	43.80	6415.09	Pile	180	243	35875
	5:41	Trans.Sys.	97105	54878	124700	38860	85840	42.92	6458.01	Pile	180	238	36114
	5:44	Trans.Sys.	9797	54883	123780	38860	84920	42.46	6500.47	Pile	180	236	36349
	5:47	Trans.Sys.	97101	54879	124920	38860	86060	43.03	6543.50	Pile	180	239	36589
	5:49	Trans.Sys.	9789	54885	124380	38860	85520	42.76	6586.26	Pile	180	238	36826
	5:52	Trans.Sys.	9791	54875	122540	38860	83680	41.84	6628.10	Pile	180	232	37059
	5:55	Trans.Sys.	9799	54884	123580	38860	84720	42.36	6670.46	Pile	180	235	37294
	5:59	Trans.Sys.	9755	54882	122260	38860	83400	41.70	6712.16	Pile	180	232	37526
	6:32	Trans.Sys.	79101	54887	122480	38860	83620	41.81	6753.97	Pile	180	232	37758
	6:36	Trans.Sys.	9753	54886	123420	38860	84560	42.28	6796.25	Pile	180	235	37993
	3:16PM	Trans.Sys.	97101	54890	124840	38860	85980	42.99	6839.24	Silo	170	253	38246
	3:20PM	Trans.Sys.	97105	54860	125240	38860	86380	43.19	6882.43	Pile	180	240	38486
	3:24PM	Trans.Sys.	9783	54863	123780	38860	84920	42.46	6924.89	Pile	180	236	38721
	3:27PM	Trans.Sys.	9755	54894	126660	38860	87800	43.90	6968.79	Pile	180	244	38965
	3:29PM	Trans.Sys.	9799	54893	124540	38860	85680	42.84	7011.63	Pile	180	238	39203
	3:38PM	Trans.Sys.	9789	54891	124980	38860	86120	43.06	7054.69	Pile	180	239	39443
	3:42PM	Trans.Sys.	9797	54889	125760	38860	86900	43.45	7098.14	Pile	180	241	39684
	3:50PM	Trans.Sys.	97101	54895	122740	38860	83880	41.94	7140.08	Pile	180	233	39917
	4:18PM	Trans.Sys.	9753	54906	123280	38860	84420	42.21	7182.29	Pile	180	235	40151
	ALL							811.00					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED														
								Lime	Cum. Tons			Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source		Mix Rate	Coal Mixed	of Coal
8/26/96	5:24	Trans.Sys.	9757	54888	123260	38860	84400	42.20	7224.49	Pile		180	234	40386
	5:27	Trans.Sys.	97105	54898	124780	38860	85920	42.96	7267.45	Pile		180	239	40625
	5:48	Trans.Sys.	97101	54897	125940	38860	87080	43.54	7310.99	Pile		180	242	40866
	5:50	Trans.Sys.	9789	54903	124820	38860	85960	42.98	7353.97	Pile		180	239	41105
	5:52	Trans.Sys.	9797	54904	122840	38860	83980	41.99	7395.96	Pile		180	233	41338
	5:55	Trans.Sys.	9791	54907	125140	38860	86280	43.14	7439.10	Pile		180	240	41578
	6:10	Trans.Sys.	9755	54901	125780	38860	86920	43.46	7482.56	Pile		180	241	41820
	6:35	Trans.Sys.	9753	54896	122100	38860	83240	41.62	7524.18	Pile		180	231	42051
	6:39	Trans.Sys.	9783	54900	124460	38860	85600	42.80	7566.98	Pile		180	238	42289
	6:43	Trans.Sys.	79101	54905	124760	38860	85900	42.95	7609.93	Pile		180	239	42527
	6:46	Trans.Sys.	97103	54917	123220	38860	84360	42.18	7652.11	Pile		180	234	42762
	7:17	Trans.Sys.	9799	54902	121880	38860	83020	41.51	7693.62	Pile		180	231	42992
	2:18PM	Trans.Sys.	9757	54920	126660	38860	87800	43.90	7737.52	Pile		180	244	43236
	2:22PM	Trans.Sys.	97105	54899	128020	38860	89160	44.58	7782.10	Pile		180	248	43484
	2:45PM	Trans.Sys.	97101	54909	123540	38860	84680	42.34	7824.44	Pile		180	235	43719
	3:07PM	Trans.Sys.	9755	54913	125080	38860	86220	43.11	7867.55	Silo		170	254	43973
	3:20PM	Trans.Sys.	9797	54911	122940	38860	84080	42.04	7909.59	Silo		170	247	44220
	3:24PM	Trans.Sys.	9791	54985	124360	38860	85500	42.75	7952.34	Pile		180	238	44457
	3:50PM	Trans.Sys.	9789	54910	119740	38860	80880	40.44	7992.78	Pile		180	225	44682
	4:10PM	Trans.Sys.	9799	54919	123720	38860	84860	42.43	8035.21	Pile		180	236	44918
	4:16PM	Trans.Sys.	97101	54916	124400	38860	85540	42.77	8077.98	Pile		180	238	45155
	4:30PM	Trans.Sys.	9783	54915	123580	38860	84720	42.36	8120.34	Pile		180	235	45391
	4:40PM	Trans.Sys.	97103	54918	125460	38860	86600	43.30	8163.64	Pile		180	241	45631
	ALL							981.35						
8/27/96	5:32	Trans.Sys.	9757	54921	125940	38860	87080	43.54	8207.18	Pile		180	242	45873
	5:36	Trans.Sys.	9795	54922	124020	38860	85160	42.58	8249.76	Pile		180	237	46110
	5:42	Trans.Sys.	9789	54987	124260	38860	85400	42.70	8292.46	Pile		180	237	46347
	5:44	Trans.Sys.	9799	54988	118040	38860	79180	39.59	8332.05	Pile		180	220	46567
	5:52	Trans.Sys.	9755	54926	124780	38860	85920	42.96	8375.01	Pile		180	239	46805
	6:11	Trans.Sys.	9783	54998	127620	38860	88760	44.38	8419.39	Pile		180	247	47052
	6:15	Trans.Sys.	9791	54997	124060	38860	85200	42.60	8461.99	Pile		180	237	47289
	6:19	Trans.Sys.	97107	54908	126880	38860	88020	44.01	8506.00	Pile		180	245	47533
	6:29	Trans.Sys.	9753	54990	122140	38860	83280	41.64	8547.64	Pile		180	231	47765
	6:32	Trans.Sys.	97101	54996	119480	38860	80620	40.31	8587.95	Pile		180	224	47988
	6:34	Trans.Sys.	97103	55000	123920	38860	85060	42.53	8630.48	Pile		180	236	48225
	6:37	Trans.Sys.	9797	54927	122220	38860	83360	41.68	8672.16	Pile		180	232	48456
	2:54PM	Trans.Sys.	9757	54992	122740	38860	83880	41.94	8714.10	Silo		170	247	48703
	2:57PM	Trans.Sys.	9799	54994	123140	38860	84280	42.14	8756.24	Pile		180	234	48937
	3:03PM	Trans.Sys.	97105	54923	125260	38860	86400	43.20	8799.44	Pile		180	240	49177
	3:12PM	Trans.Sys.	9755	54995	122640	38860	83780	41.89	8841.33	Pile		180	233	49410

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED														
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
8/27/96	3:17PM	Trans.Sys.	9783	54999	121860	38860	83000	41.50	8882.83	Pile	180	231	49640
(CONT.)	3:44PM	Trans.Sys.	97101	54989	124820	38860	85960	42.98	8925.81	Pile	180	239	49879
	3:49PM	Trans.Sys.	9753	54914	124120	38860	85260	42.63	8968.44	Pile	180	237	50116
	3:53PM	Trans.Sys.	9795	55010	125080	38860	86220	43.11	9011.55	Pile	180	240	50356
	3:56PM	Trans.Sys.	9789	54993	126540	38860	87680	43.84	9055.39	Pile	180	244	50599
	4:00PM	Trans.Sys.	9797	55001	121020	38860	82160	41.08	9096.47	Pile	180	228	50827
	4:15PM	Trans.Sys.	97103	54991	125800	38860	86940	43.47	9139.94	Pile	180	242	51069
	ALL							976.30					
8/28/96	5:36	Trans.Sys.	9759	55002	123900	38860	85040	42.52	9182.46	Pit	190	224	51293
	5:39	Trans.Sys.	97105	55004	124720	38860	85860	42.93	9225.39	Pit	190	226	51519
	5:41	Trans.Sys.	9797	55014	121340	38860	82480	41.24	9266.63	Pit	190	217	51736
	5:44	Trans.Sys.	97107	54925	121520	38860	82660	41.33	9307.96	Pit	190	218	51953
	5:47	Trans.Sys.	9755	55006	123360	38860	84500	42.25	9350.21	Pit	190	222	52175
	5:49	Trans.Sys.	9795	55011	125740	38860	86880	43.44	9393.65	Pit	190	229	52404
	5:52	Trans.Sys.	9799	55003	123280	38860	84420	42.21	9435.86	Pit	190	222	52626
	5:58	Trans.Sys.	9791	54986	121840	38860	82980	41.49	9477.35	Pit	190	218	52845
	6:02	Trans.Sys.	9783	55007	123080	38860	84220	42.11	9519.46	Pit	190	222	53066
	6:21	Trans.Sys.	79101	55008	124300	38860	85440	42.72	9562.18	Pit	190	225	53291
	6:24	Trans.Sys.	9753	55009	127660	38860	88800	44.40	9606.58	Pit	190	234	53525
	6:28	Trans.Sys.	97103	55012	120660	38860	81800	40.90	9647.48	Pit	190	215	53740
	2:36PM	Trans.Sys.	9757	55013	124820	38860	85960	42.98	9690.46	Pit	190	226	53966
	2:40PM	Trans.Sys.	97105	55005	122780	38860	83920	41.96	9732.42	Pit	190	221	54187
	2:44PM	Trans.Sys.	97107	55016	123060	38860	84200	42.10	9774.52	Pit	190	222	54409
	3:15PM	Trans.Sys.	9755	55017	127040	38860	88180	44.09	9818.61	Pit	190	232	54641
	3:25PM	Trans.Sys.	9799	55019	123020	38860	84160	42.08	9860.69	Silo	190	221	54862
	3:35PM	Trans.Sys.	9783	55021	124480	38860	85620	42.81	9903.50	Pit	190	225	55088
	3:37PM	Trans.Sys.	9797	55015	123220	38860	84360	42.18	9945.68	Pit	190	222	55310
	3:54PM	Trans.Sys.	97101	55022	123480	38860	84620	42.31	9987.99	Pit	190	223	55532
	4:00PM	Trans.Sys.	9795	55044	122680	38860	83820	41.91	10029.90	Pit	190	221	55753
	4:03PM	Trans.Sys.	9758	55023	121880	38860	83020	41.51	10071.41	Pit	190	218	55971
	4:26PM	Trans.Sys.	97103	55024	124280	38860	85420	42.71	10114.12	Pit	190	225	56196
	ALL							974.18					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
8/29/96	5:38	Trans.Sys.	9757	55035	120400	38860	81540	40.77	10154.89	Pile	180	227	56423
	5:41	Trans.Sys.	97105	54924	125420	38860	86560	43.28	10198.17	Pile	180	240	56663
	5:46	Trans.Sys.	9797	55042	122180	38860	83320	41.66	10239.83	Pile	180	231	56894
	5:49	Trans.Sys.	97107	55038	120820	38860	81960	40.98	10280.81	Pile	180	228	57122
	5:52	Trans.Sys.	9783	55041	119160	38860	80300	40.15	10320.96	Pile	180	223	57345
	5:54	Trans.Sys.	9789	55039	121500	38860	82640	41.32	10362.28	Pile	180	230	57575
	6:02	Trans.Sys.	9791	55020	113500	38860	74640	37.32	10399.60	Pile	180	207	57782
	5:58	Trans.Sys.	9795	55018	122560	38860	83700	41.85	10441.45	Pile	180	233	58015
	6:05	Trans.Sys.	9799	55040	122620	38860	83760	41.88	10483.33	Pile	180	233	58247
	6:44	Trans.Sys.	9753	55045	122120	38860	83260	41.63	10524.96	Pile	180	231	58478
	6:47	Trans.Sys.	79101	55043	124060	38860	85200	42.60	10567.56	Pile	180	237	58715
	6:51	Trans.Sys.	97103	55046	126020	38860	87160	43.58	10611.14	Pile	180	242	58957
	3:04PM	Trans.Sys.	9757	55047	122220	38860	83360	41.68	10652.82	Pile	180	232	59189
	4:04PM	Trans.Sys.	97105	55036	120520	38860	81660	40.83	10693.65	Pile	180	227	59416
	4:19PM	Trans.Sys.	9783	55050	122200	38860	83340	41.67	10735.32	Silo	170	245	59661
	4:24PM	Trans.Sys.	97107	55049	126500	38860	87640	43.82	10779.14	Pile	180	243	59904
	4:54PM	Trans.Sys.	9797	55048	124740	38860	85880	42.94	10822.08	Pile	180	239	60143
	4:58PM	Trans.Sys.	9795	55052	125580	38860	86720	43.36	10865.44	Pile	180	241	60384
	5:13PM	Trans.Sys.	9789	55065	120380	38860	81520	40.76	10906.20	Pile	180	226	60610
	5:30PM	Trans.Sys.	9791	55066	126140	38860	87280	43.64	10949.84	Pile	180	242	60853
	6:03PM	Trans.Sys.	9753	55055	124560	38860	85700	42.85	10992.69	Pile	180	238	61091
	7:12PM	Trans.Sys.	97101	55056	124940	38860	86080	43.04	11035.73	Pile	180	239	61330
	7:17PM	Trans.Sys.	97103	55057	126120	38860	87260	43.63	11079.36	Pile	180	242	61572
	ALL							965.24					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
8/30/96	5:30	Trans.Sys.	9757	55058	127340	38860	88480	44.24	11123.60	Pile	180	246	61818
	5:33	Trans.Sys.	97105	55037	126940	38860	88080	44.04	11167.64	Pit	190	232	62050
	5:49	Trans.Sys.	97107	55061	124220	38860	85360	42.68	11210.32	Pit	190	225	62274
	5:52	Trans.Sys.	9797	55062	125900	38860	87040	43.52	11253.84	Pit	190	229	62503
	5:57	Trans.Sys.	9789	55051	125520	38860	86660	43.33	11297.17	Pit	190	228	62731
	6:00	Trans.Sys.	9755	55063	122040	38860	83180	41.59	11338.76	Pit	190	219	62950
	6:07	Trans.Sys.	9791	55053	122400	38860	83540	41.77	11380.53	Pit	190	220	63170
	6:11	Trans.Sys.	9799	55054	125900	38860	87040	43.52	11424.05	Pit	190	229	63399
	6:25	Trans.Sys.	79101	55069	126400	38860	87540	43.77	11467.82	Pit	190	230	63630
	6:28	Trans.Sys.	9753	55068	125600	38860	86740	43.37	11511.19	Pit	190	228	63858
	6:35	Trans.Sys.	9783	55060	123740	38860	84880	42.44	11553.63	Pit	190	223	64081
	6:39	Trans.Sys.	97103	55070	124640	38860	85780	42.89	11596.52	Pit	190	226	64307
	2:50PM	Trans.Sys.	97107	55072	126840	38860	87980	43.99	11640.51	Pit	190	232	64538
	3:37PM	Trans.Sys.	9755	55075	124760	38860	85900	42.95	11683.46	Pit	190	226	64765
	3:39PM	Trans.Sys.	9797	55073	125980	38860	87120	43.56	11727.02	Pit	190	229	64994
	3:49PM	Trans.Sys.	97105	55059	124980	38860	86120	43.06	11770.08	Silo	170	253	65247
	3:54PM	Trans.Sys.	9789	55087	127680	38860	88820	44.41	11814.49	Pit	190	234	65481
	3:57PM	Trans.Sys.	9799	55088	126000	38860	87140	43.57	11858.06	Pit	190	229	65710
	4:14PM	Trans.Sys.	9795	55064	124060	38860	85200	42.60	11900.66	Pit	190	224	65934
	4:24PM	Trans.Sys.	97101	55078	125860	38860	87000	43.50	11944.16	Pit	190	229	66163
	4:37PM	Trans.Sys.	9753	55079	126440	38860	87580	43.79	11987.95	Pit	190	230	66394
	5:16PM	Trans.Sys.	9703	55081	121500	38860	82640	41.32	12029.27	Pit	190	217	66611
	ALL							949.91					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
9/3/96	5:32	Trans.Sys.	9757	55071	123700	38860	84840	42.42	12071.69	Pit	190	223	66834
9/3/96	5:35	Trans.Sys.	97105	55085	123960	38860	85100	42.55	12114.24	Pit	190	224	67058
9/3/96	5:45	Trans.Sys.	97107	55082	123800	38860	84940	42.47	12156.71	Pit	190	224	67282
9/3/96	5:47	Trans.Sys.	9797	55084	126960	38860	88100	44.05	12200.76	Pit	190	232	67514
9/3/96	5:51	Trans.Sys.	9791	55067	121940	38860	83080	41.54	12242.30	Pit	190	219	67732
9/3/96	5:55	Trans.Sys.	9755	55083	125760	38860	86900	43.45	12285.75	Pit	190	229	67961
9/3/96	6:07	Trans.Sys.	9783	55080	127880	38860	89020	44.51	12330.26	Pit	190	234	68195
9/3/96	6:11	Trans.Sys.	9799	55089	122440	38860	83580	41.79	12372.05	Pit	190	220	68415
9/3/96	7:05	Trans.Sys.	97103	55093	124860	38860	86000	43.00	12415.05	Pit	190	226	68642
9/3/96	7:13	Trans.Sys.	9753	55092	125000	38860	86140	43.07	12458.12	Pit	190	227	68868
9/3/96	7:16	Trans.Sys.	7985	55074	125200	38860	86340	43.17	12501.29	Pit	190	227	69096
9/3/96	4:14PM	Trans.Sys.	9757	55094	125660	38860	86800	43.40	12544.69	Silo	170	255	69351
9/3/96	4:17PM	Trans.Sys.	97107	55097	123940	38860	85080	42.54	12587.23	Silo	170	250	69601
9/3/96	4:20PM	Trans.Sys.	97101	55091	124160	38860	85300	42.65	12629.88	Pit	190	224	69826
9/3/96	4:23PM	Trans.Sys.	9797	55306	122880	38860	84020	42.01	12671.89	Pit	190	221	70047
9/3/96	4:31PM	Trans.Sys.	9755	55298	122280	38860	83420	41.71	12713.60	Pit	190	220	70266
9/3/96	4:57PM	Trans.Sys.	9791	55099	121220	38860	82360	41.18	12754.78	Pit	190	217	70483
9/3/96	4:59PM	Trans.Sys.	9783	55299	121540	38860	82680	41.34	12796.12	Pit	190	218	70700
9/3/96	5:03PM	Trans.Sys.	9799	55300	122720	38860	83860	41.93	12838.05	Pit	190	221	70921
9/3/96	5:13PM	Trans.Sys.	97103	55301	121800	38860	82940	41.47	12879.52	Pit	190	218	71139
9/3/96	5:42PM	Trans.Sys.	9789	55303	121980	38860	83120	41.56	12921.08	Pit	190	219	71358
9/3/96	5:49PM	Trans.Sys.	9753	55302	124920	38860	86060	43.03	12964.11	Pit	190	226	71585
9/3/96	5:56PM	Trans.Sys.	97105	55086	122080	38860	83220	41.61	13005.72	Pit	190	219	71804
	ALL							976.45					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
						/		Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
9/4/96	5:25	Trans.Sys.	9757	55317	122520	38860	83660	41.83	13047.55	Pit	190	220	72024
9/4/96	5:28	Trans.Sys.	97105	55315	116080	38860	77220	38.61	13086.16	Pit	190	203	72227
9/4/96	5:47	Trans.Sys.	97107	55304	121060	38860	82200	41.10	13127.26	Pit	190	216	72443
9/4/96	5:49	Trans.Sys.	9797	55307	122060	38860	83200	41.60	13168.86	Pit	190	219	72662
9/4/96	5:53	Trans.Sys.	9759	55308	122120	38860	83260	41.63	13210.49	Pit	190	219	72881
9/4/96	5:55	Trans.Sys.	9799	55311	124500	38860	85640	42.82	13253.31	Pit	190	225	73107
9/4/96	5:58	Trans.Sys.	9791	55309	122780	38860	83920	41.96	13295.27	Pit	190	221	73328
9/4/96	6:13	Trans.Sys.	9783	55310	123500	38860	84640	42.32	13337.59	Pit	190	223	73550
9/4/96	6:26	Trans.Sys.	789	55313	123720	38860	84860	42.43	13380.02	Pit	190	223	73774
9/4/96	6:28	Trans.Sys.	9753	55314	120720	38860	81860	40.93	13420.95	Pit	190	215	73989
9/4/96	6:32	Trans.Sys.	9795	55090	122880	38860	84020	42.01	13462.96	Pit	190	221	74210
9/4/96	3:21PM	Trans.Sys.	97107	55319	123860	38860	85000	42.50	13505.46	Silo	170	250	74460
9/4/96	3:29PM	Trans.Sys.	9757	55318	123200	38860	84340	42.17	13547.63	Pit	190	222	74682
9/4/96	3:25PM	Trans.Sys.	97105	55316	123920	38860	85060	42.53	13590.16	Pit	190	224	74906
9/4/96	3:46PM	Trans.Sys.	9755	55321	121840	38860	82980	41.49	13631.65	Pit	190	218	75124
9/4/96	3:52PM	Trans.Sys.	9799	55322	121420	38860	82560	41.28	13672.93	Pit	190	217	75342
9/4/96	3:55PM	Trans.Sys.	9783	55324	122620	38860	83760	41.88	13714.81	Pit	190	220	75562
9/4/96	3:59PM	Trans.Sys.	9791	55323	125800	38860	86940	43.47	13758.28	Pit	190	229	75791
9/4/96	4:01PM	Trans.Sys.	9797	55320	122280	38860	83420	41.71	13799.99	Pit	190	220	76010
9/4/96	4:19PM	Trans.Sys.	97103	55312	126080	38860	87220	43.61	13843.60	Pit	190	230	76240
9/4/96	5:03PM	Trans.Sys.	9789	55337	123640	38860	84780	42.39	13885.99	Pit	190	223	76463
9/4/96	5:06PM	Trans.Sys.	9753	55326	120600	38860	81740	40.87	13926.86	Pit	190	215	76678
9/4/96	5:10PM	Trans.Sys.	9795	55339	122760	38860	83900	41.95	13968.81	Pit	190	221	76899
	ALL							963.09					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
9/5/96	5:26	Trans.Sys.	9757	55320	120720	38860	81860	40.93	14009.74	Pit	190	215	77114
9/5/96	5:30	Trans.Sys.	97105	55329	122600	38860	83740	41.87	14051.61	Pit	190	220	77335
9/5/96	5:46	Trans.Sys.	9789	55325	125720	38860	86860	43.43	14095.04	Pit	190	229	77563
9/5/96	5:48	Trans.Sys.	97107	55328	125140	38860	86280	43.14	14138.18	Pit	190	227	77790
9/5/96	5:50	Trans.Sys.	9755	55331	125120	38860	86260	43.13	14181.31	Pit	190	227	78017
9/5/96	5:52	Trans.Sys.	9797	55335	122440	38860	83580	41.79	14223.10	Pit	190	220	78237
9/5/96	5:54	Trans.Sys.	9799	55332	121600	38860	82740	41.37	14264.47	Pit	190	218	78455
9/5/96	5:58	Trans.Sys.	9791	55334	122600	38860	83740	41.87	14306.34	Pit	190	220	78675
9/5/96	6:03	Trans.Sys.	9783	55333	122920	38860	84060	42.03	14348.37	Pit	190	221	78897
9/5/96	6:24	Trans.Sys.	9753	55338	121520	38860	82660	41.33	14389.70	Pit	190	218	79114
9/5/96	6:27	Trans.Sys.	97101	55305	121180	38860	82320	41.16	14430.86	Pit	190	217	79331
9/5/96	6:30	Trans.Sys.	97103	55336	126540	38860	87680	43.84	14474.70	Pit	190	231	79561
9/5/96	3:46PM	Trans.Sys.	97105	55095	123000	38860	84140	42.07	14516.77	Pit	190	221	79783
9/5/96	3:50PM	Trans.Sys.	97107	55343	120680	38860	81820	40.91	14557.68	Silo	170	241	80024
9/5/96	3:53PM	Trans.Sys.	9755	55344	121060	38860	82200	41.10	14598.78	Pit	190	216	80240
9/5/96	3:56PM	Trans.Sys.	9799	55346	121960	38860	83100	41.55	14640.33	Pit	190	219	80459
9/5/96	4:05PM	Trans.Sys.	9789	55356	120480	38860	81620	40.81	14681.14	Pit	190	215	80673
9/5/96	4:09PM	Trans.Sys.	9757	55341	120140	38860	81280	40.64	14721.78	Pit	190	214	80887
9/5/96	4:38PM	Trans.Sys.	9783	55348	120560	38860	81700	40.85	14762.63	Pit	190	215	81102
9/5/96	4:41PM	Trans.Sys.	9791	55347	121260	38860	82400	41.20	14803.83	Pit	190	217	81319
9/5/96	4:58PM	Trans.Sys.	9753	55349	121500	38860	82640	41.32	14845.15	Pit	190	217	81537
9/5/96	5:29PM	Trans.Sys.	97103	55351	124520	38860	85660	42.83	14887.98	Pit	190	225	81762
9/5/96	5:33PM	Trans.Sys.	97101	55350	125440	38860	86580	43.29	14931.27	Pit	190	228	81990
	ALL							962.46					

LEHIGH LIME APPLICATION AND QUANTITIES USED OR MIXED													
								Lime	Cum. Tons		Lime	Tons of	Cum. Ton
Date	Time	Hauler	Truck #	B/L #	Gross	Tare	Net	Tons	of Lime	Source	Mix Rate	Coal Mixed	of Coal
9/6/96	5:23	Trans.Sys.	9757	55357	123940	38860	85080	42.54	14973.81	Pit	190	224	82214
9/6/96	5:26	Trans.Sys.	97105	55096	126560	38860	87700	43.85	15017.66	Pit	190	231	82444
9/6/96	5:47	Trans.Sys.	9789	55342	122760	38860	83900	41.95	15059.61	Pit	190	221	82665
9/6/96	5:49	Trans.Sys.	97107	55353	123680	38860	84820	42.41	15102.02	Pit	190	223	82888
9/6/96	5:58	Trans.Sys.	9799	55355	121460	38860	82600	41.30	15143.32	Pit	190	217	83106
9/6/96	6:00	Trans.Sys.	9797	55345	121620	38860	82760	41.38	15184.70	Pit	190	218	83324
9/6/96	6:04	Trans.Sys.	9791	55359	122480	38860	83620	41.81	15226.51	Pit	190	220	83544
9/6/96	6:09	Trans.Sys.	9783	55358	118600	38860	79740	39.87	15266.38	Pit	190	210	83754
9/6/96	6:14	Trans.Sys.	97101	55362	120920	38860	82060	41.03	15307.41	Pit	190	216	83969
9/6/96	6:16	Trans.Sys.	9755	55354	122060	38860	83200	41.60	15349.01	Pit	190	219	84188
9/6/96	6:19	Trans.Sys.	9753	55360	122400	38860	83540	41.77	15390.78	Pit	190	220	84408
9/6/96	6:22	Trans.Sys.	97103	55361	121400	38860	82540	41.27	15432.05	Pit	190	217	84625
9/6/96	2:55PM	Trans.Sys.	9757	55363	118969	38860	80109	40.05	15472.10	Pit	190	211	84836
9/6/96	3:02PM	Trans.Sys.	97105	55364	121260	38860	82400	41.20	15513.30	Pit	190	217	85053
9/6/96	3:43PM	Trans.Sys.	97107	55365	121780	38860	82920	41.46	15554.76	Silo	170	244	85297
9/6/96	3:51PM	Trans.Sys.	9791	55368	124100	38860	85240	42.62	15597.38	Pit	190	224	85521
9/6/96	3:54PM	Trans.Sys.	9783	55369	120640	38860	81780	40.89	15638.27	Pit	190	215	85737
9/6/96	3:58PM	Trans.Sys.	9755	55371	122700	38860	83840	41.92	15680.19	Pit	190	221	85957
9/6/96	4:24PM	Trans.Sys.	97101	55370	121560	38860	82700	41.35	15721.54	Pit	190	218	86175
9/6/96	4:32PM	Trans.Sys.	9753	55372	121260	38860	82400	41.20	15762.74	Pit	190	217	86392
9/6/96	4:45PM	Trans.Sys.	9799	55367	122040	38860	83180	41.59	15804.33	Pit	190	219	86611
9/6/96	4:51PM	Trans.Sys.	97103	55373	122900	38860	84040	42.02	15846.35	Pit	190	221	86832
	ALL							915.08					

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION PROGRAM
AMR PROJECT NUMBER: DEQ-AMR 94-002
LEHIGH PHASE II PROJECT
DATE OF PREPARATION: DECEMBER 18TH, 1996

COST CATEGORY	AMOUNT
ENGINEERING COST:	
Design Engineering Phase II	$7,556.97
Construction Engineering and Inspection	$30,907.24
Final Report Preparation	$3,815.42
PROJECT ENGINEERING COST:	$42,279.63
CONSTRUCTION COST:	
Kiln Dust Purchase	$95,078.10
Shumaker Trucking and Excavating Contractors, Inc.	$932,644.65
TOTAL CONSTRUCTION COST	$1,027,722.75

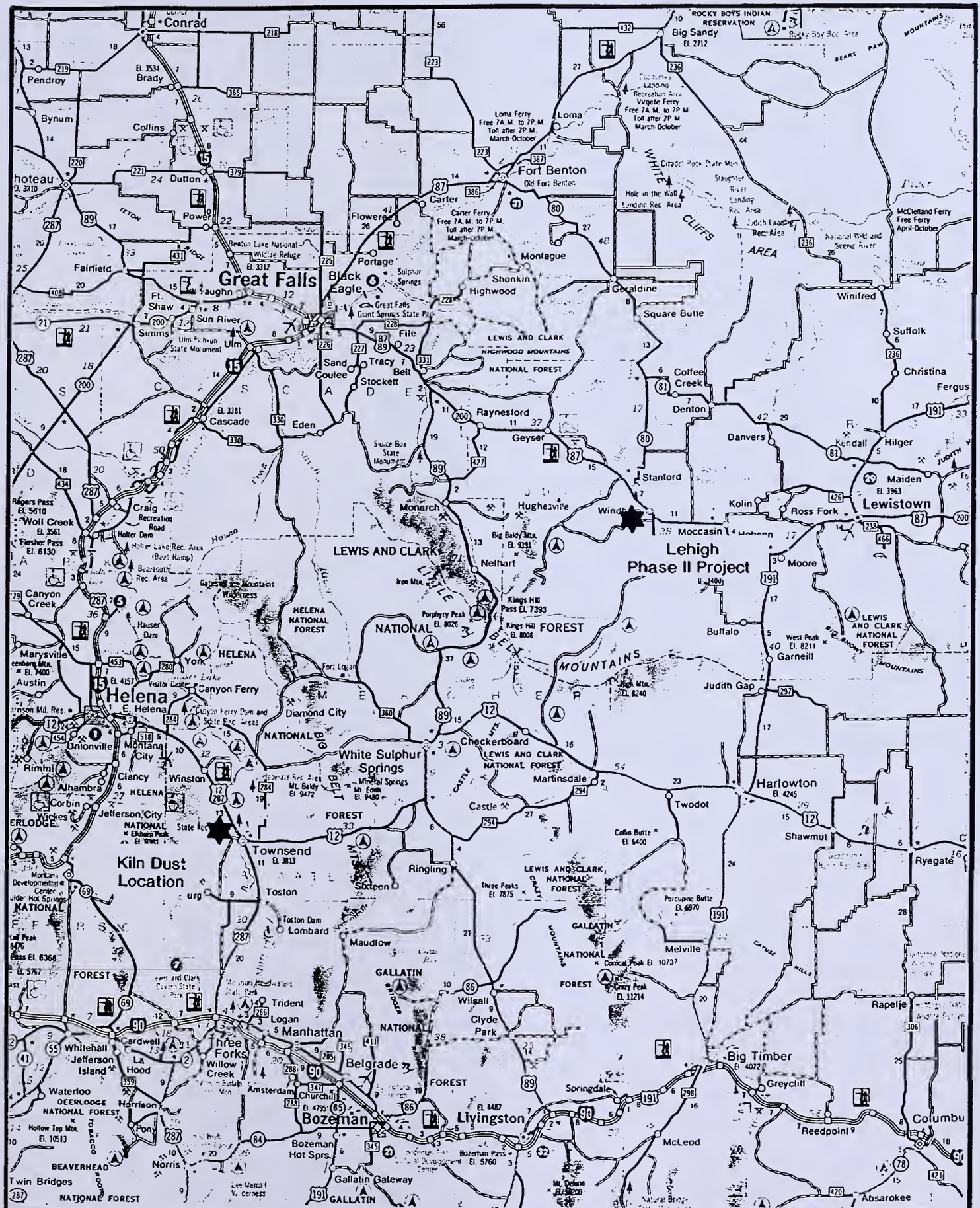
PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:

DESIGN ENGINEERING/CONSTRUCTION COST	0.74%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	3.38%
TOTAL ENGINEERING COST/CONSTRUCTION COST	4.11%

REMARKS: Services provided by Spectrum Engineering included planning, bid document preparation, contract administration, quantity accounting, full time construction inspection and final report preparation and project close-out.

ATTACHMENT 5

CONSTRUCTION BID PACKAGE DRAWINGS



LEGEND

★ Site Locations

SPECTRUM ENGINEERING

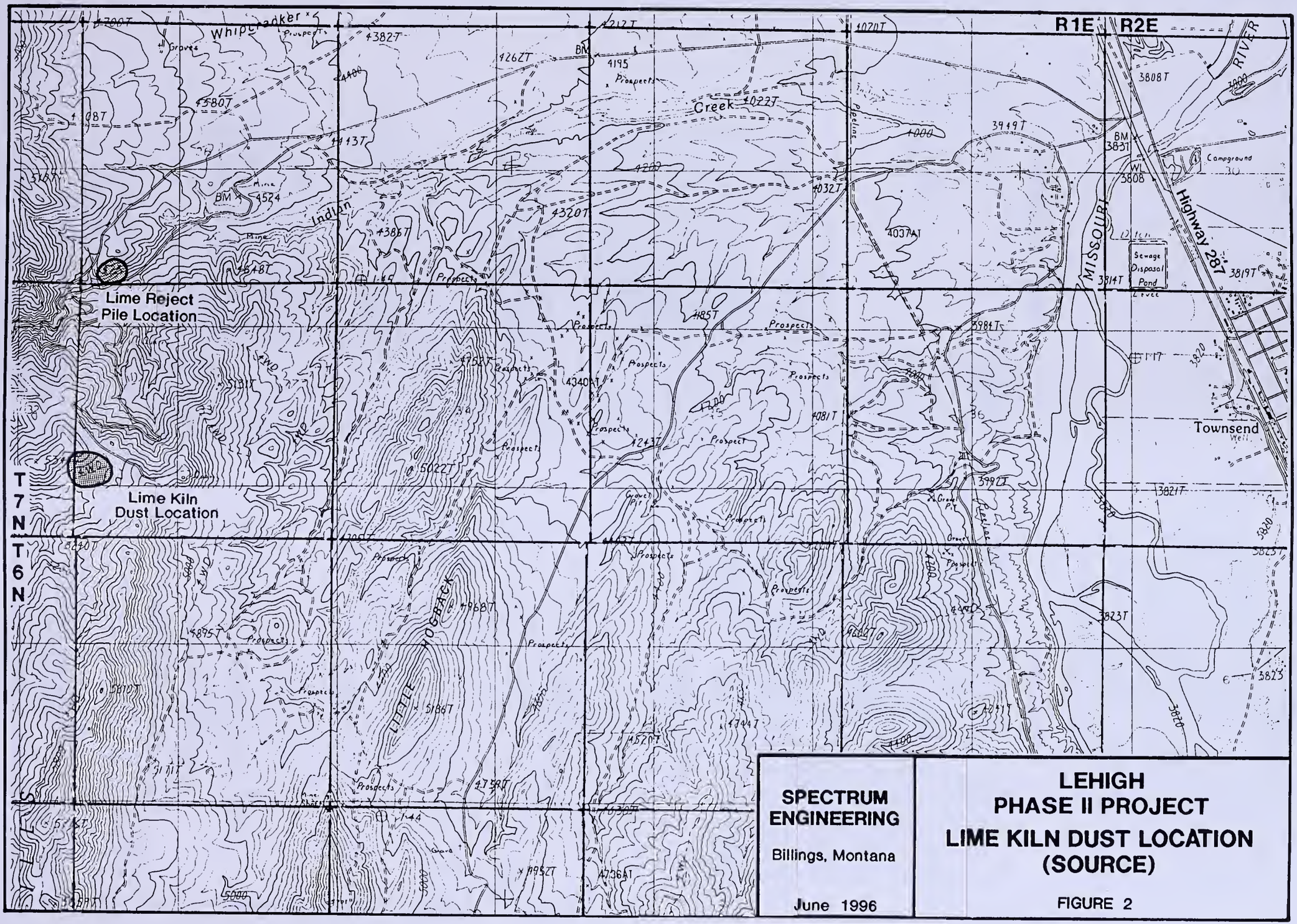
Billings, Montana

June 1996

LEHIGH PHASE II PROJECT

GENERAL SITE LOCATION

FIGURE 1



SPECTRUM ENGINEERING

Billings, Montana

June 1996

LEHIGH PHASE II PROJECT

LIME KILN DUST LOCATION (SOURCE)

FIGURE 2

LEHIGH PHASE II PROJECT

LOCATED IN
JUDITH BASIN COUNTY, MONTANA

MT DEQ/AMRB 94-002

PREPARED FOR:
STATE OF MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION BUREAU

MAP SHEET INDEX

HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THIS SITE. THE EXTENT OF THESE HAZARDS IS NDT FULLY KNOWN.

THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THIS SITE SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFDRMATIDN PERTAINING TD THIS SITE MAY EXIST IN THE DEPARTMENT OF ENVIRONMENTAL OUALITY'S FILES DR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

CONSTRUCTION LIMITS

ACCESS ROUTES, WDRK AREAS, AND CONSTRUCTION LIMITS WILL BE FIELD STAKED BY THE ENGINEER. VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED.

ARCHAEOLOGICAL NOTICE

THERE MAY BE ARCHAEOLDGICAL SITES IN THE VICINITY OF THIS PROJECT. ANY ARCHAEOLDGICAL MATERIALS NEAR THE CONSTRUCTION AREA WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THE ARCHAEDLDGICAL SITE DR MATERIALS BE DISTURBED.

LANDOWNER

Gayle Evans
P.O. Box 3156
Stanford, MT 59479
Phone: 406-566-2509

BEST MANAGEMENT PRACTICES (BMP'S)

SITE NAME	LEGAL DESCRIPTION	DISTURBED ACRES	TIME LAPSE[1]	SURFACE WATER LOCATION[2]	STRAW BALES OR SILT FENCE
LEHIGH SITE	T15N, R12E, SEC. 21 N1/2 NE1/4	10.9	120	0	1650 FEET

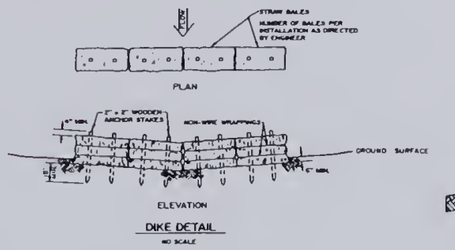
The purpose of this project is to reclaim an abandoned coal mine previously reclaimed and now requiring some additional maintenance work. The construction activity is described under the Work Deacription found on the individual Site Plans. Work tasks will include excavating buried coal waste, neutralizing this waste with lime kiln dust and replacing this coal waste, and revegetating all disturbed areas. Best Management Practices (BMP'S) during construction for controlling sediment and erosion in storm runoff include: temporary stabilization practices of mulching the entire area to be revegetated and placing straw bales or silt fence for erosion control (as required - see table above); and permanent stabilization practices of seeding and fertilizing.

The Owner is the State of Montana; Department of Environmental Quality, Abandoned Mine Reclamation Bureau, Reclamation Division, 1520 East 6th Avenue, Helena, Montana 59620 at telephone 1-406-444-5440. The Project Manager is Joel Chavez.

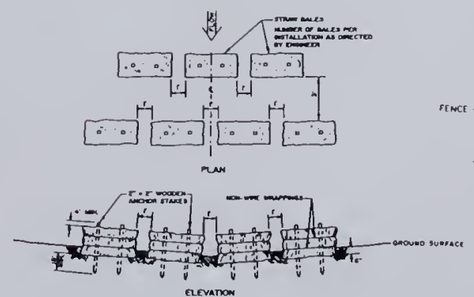
Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPOES Stormwater Discharge Permit and Erosion Control Plan. Good housekeeping chores will include as a minimum: 1) Any construction waste from materials packaging, or other Contractor generated waste will be disposed of in a licensed disposal facility; 2) If conditions on-site become such that there is potential to track sediment off-site, then all vehicles shall be washed down before being allowed to leave the project area. Vehicle washing will take place so as to contain all washed sediment in such a manner as to prevent spillage and prevent contamination of the surrounding soil. 3) All materials shall be stored in a bermed plastic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-site for clean up of any spills. Any soil contaminated with petroleum wastes will be disposed of under a plan approved by the Montana Department of Health and Environmental Sciences; and 4) Lime and fertilizer shall be stored on pallets off the ground and covered with plastic or in such a manner as to prevent spillage and washing from rain water or wind into surrounding soil or off-site.

FOOTNOTES:
1. Estimated time period in days from the start of construction until the site is permanently fertilized and seeded. This is the time from site arrival until demobilization. Temporary stabilization will include mulch and straw bales or silt fence as outlined above.
2. The distance in miles to the nearest source of potential surface water including rivers and streams (perennial, intermittent or current dry drainages). A full description of distances to water sources is shown on the individual Site Plans.

EROSION CONTROL BALE CHECK

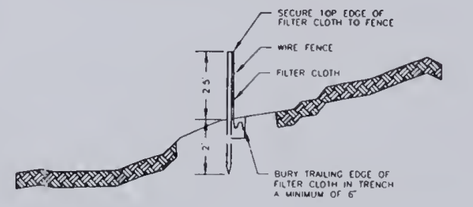


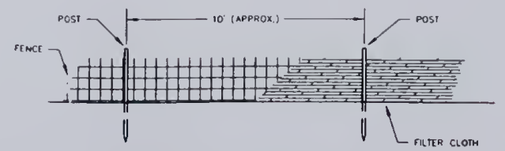
DIKE DETAIL
NO SCALE



EROSION CONTROL DETAIL
NO SCALE

SEDIMENT CONTROL FENCE



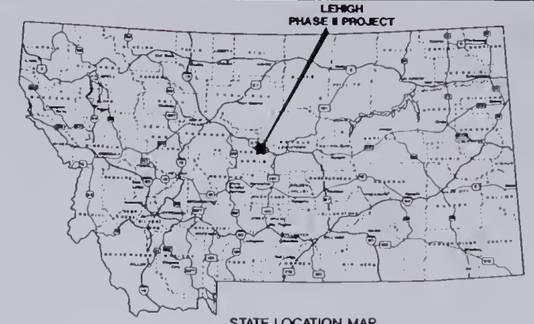


MATERIALS FOR FILTER CLOTH FENCE SHALL CONSIST OF STANDARD WOVEN LIVESTOCK WIRE, A MINIMUM OF 36 INCHES IN HEIGHT, A MINIMUM OF 14- GAGE WIRE, WITH A MAXIMUM MESH SPACING OF 6 INCHES. POSTS SHALL BE EITHER WOOD OR STEEL, MINIMUM LENGTH OF 4.5 FEET

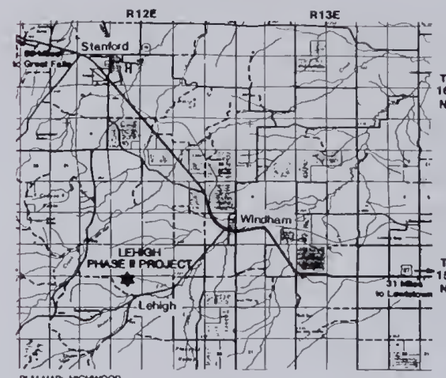
ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE WORK SHOWN ON THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION.

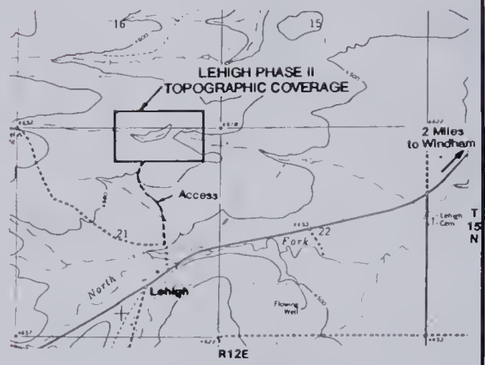
William C. Maehl
Montana P.E. No. 5274 PE



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

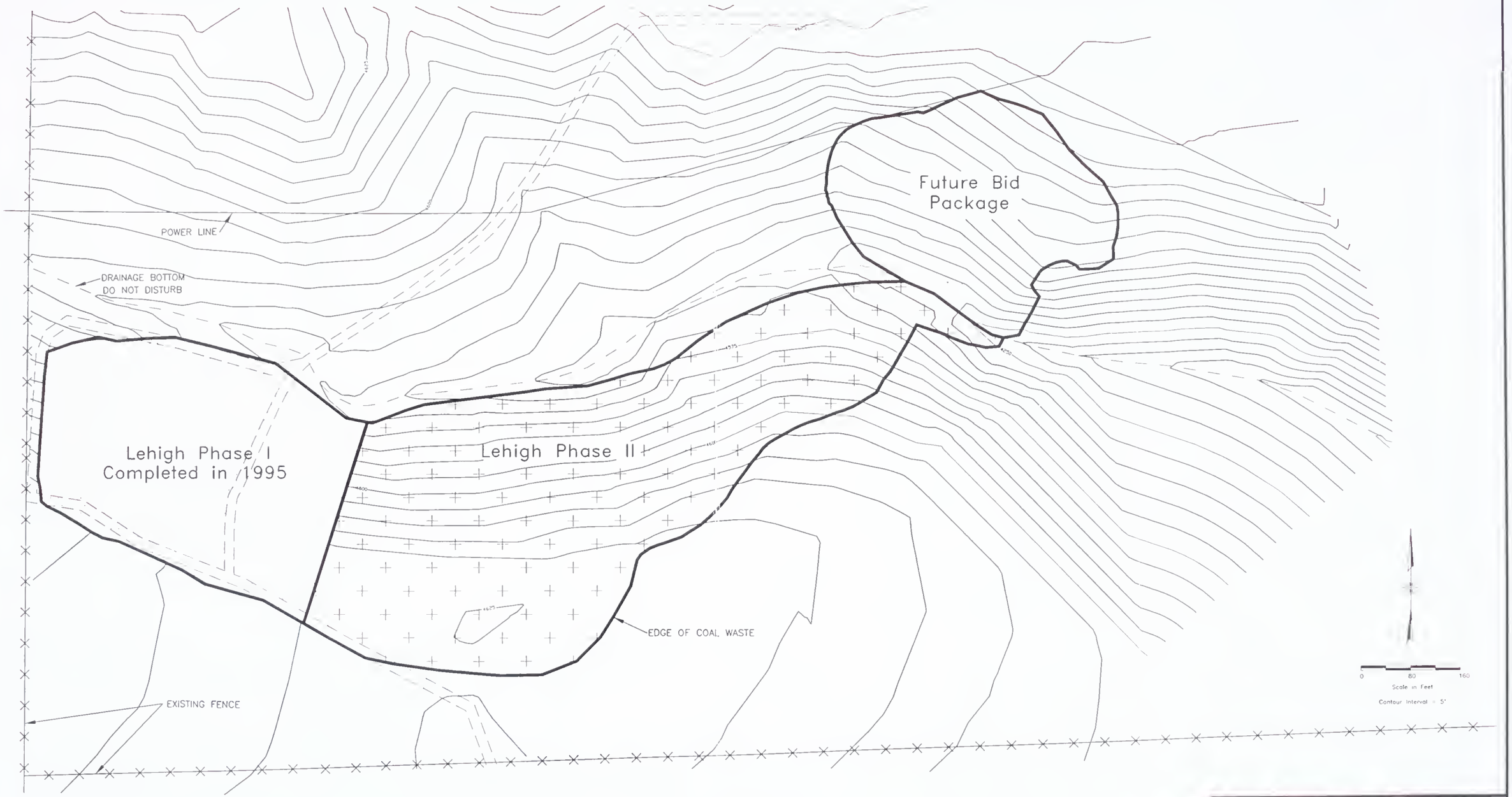
LEHIGH
PHASE II PROJECT

SECTION 21, T15N, R12E
JUDITH BASIN COUNTY, MONTANA

STATE OF MONTANA, DEPT. OF ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1520 East 6th Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

DATE: June 1996	
DRAWN BY: DLO	
APPROVED BY: WCM	
REVISIONS NO.	DATE / BY
SHEET NO. 1 of 4	



CURRENT TOPOGRAPHY

LEGEND

- 4600 — Contour
- Access Road
- Lehigh Phase I Completed in 1995
- Lime Kiln Dust Treatment Area Lehigh Phase II Project

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

CURRENT TOPOGRAPHY

SECTION 21, T15N, R12E

JUDITH BASIN COUNTY, MONTANA

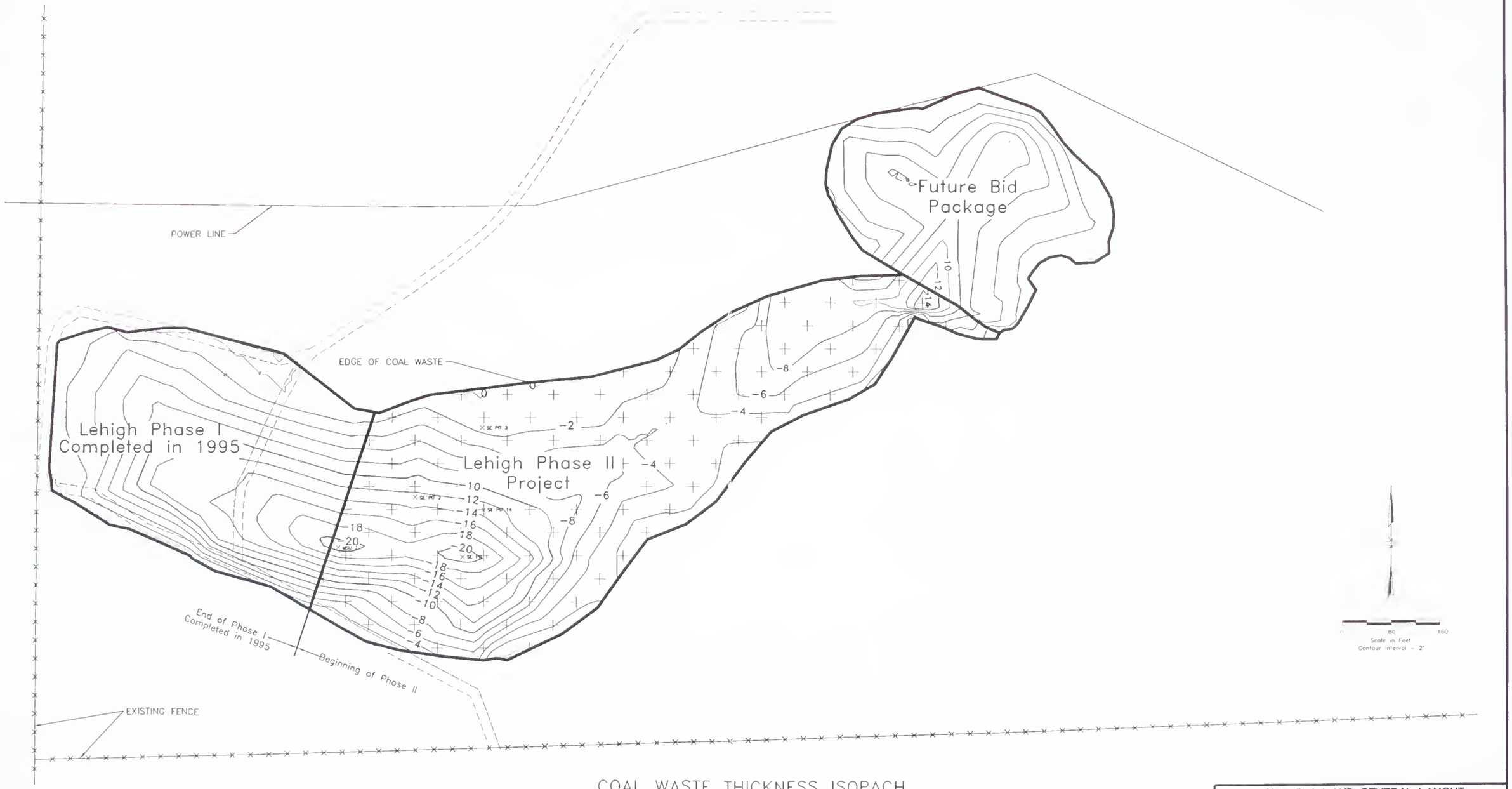
STATE OF MONTANA, DEPT. OF ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1520 East 6th Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

DATE: June 1996
DRAWN BY: DLO
APPROVED BY: WCM
REVISIONS
NO. DATE BY

SHEET NO. 2 of 4

File Name: Phase2.dwg



COAL WASTE THICKNESS ISOPACH

TEST PIT DATA

Test Pit Number	Cover Soil Thickness (in)	Coal Waste Thickness (ft)
SE PIT 1	0	21 50
SE PIT 2	7	12 67
SE PIT 3	6	1 25
SE PIT 14	6	13 08
MSU 2	0 6	21 33

LEGEND

—10— Coal Waste Thickness Contour

× SE PIT 1 Test Pit Number and Location

Access Road

Lehigh Phase I Completed in 1995

Lime Kiln Dust Treatment Area Lehigh Phase II Project

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

COAL WASTE THICKNESS ISOPACH

SECTION 21, T15N, R12E

JUDITH BASIN COUNTY, MONTANA

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SPECTRUM ENGINEERING

Mining and Civil Engineers

1413 4th Avenue North

Billings, Montana 59101

Phone: 406-259-2412

DATE: June 1998

DRAWN BY: DLO

APPROVED BY: WCM

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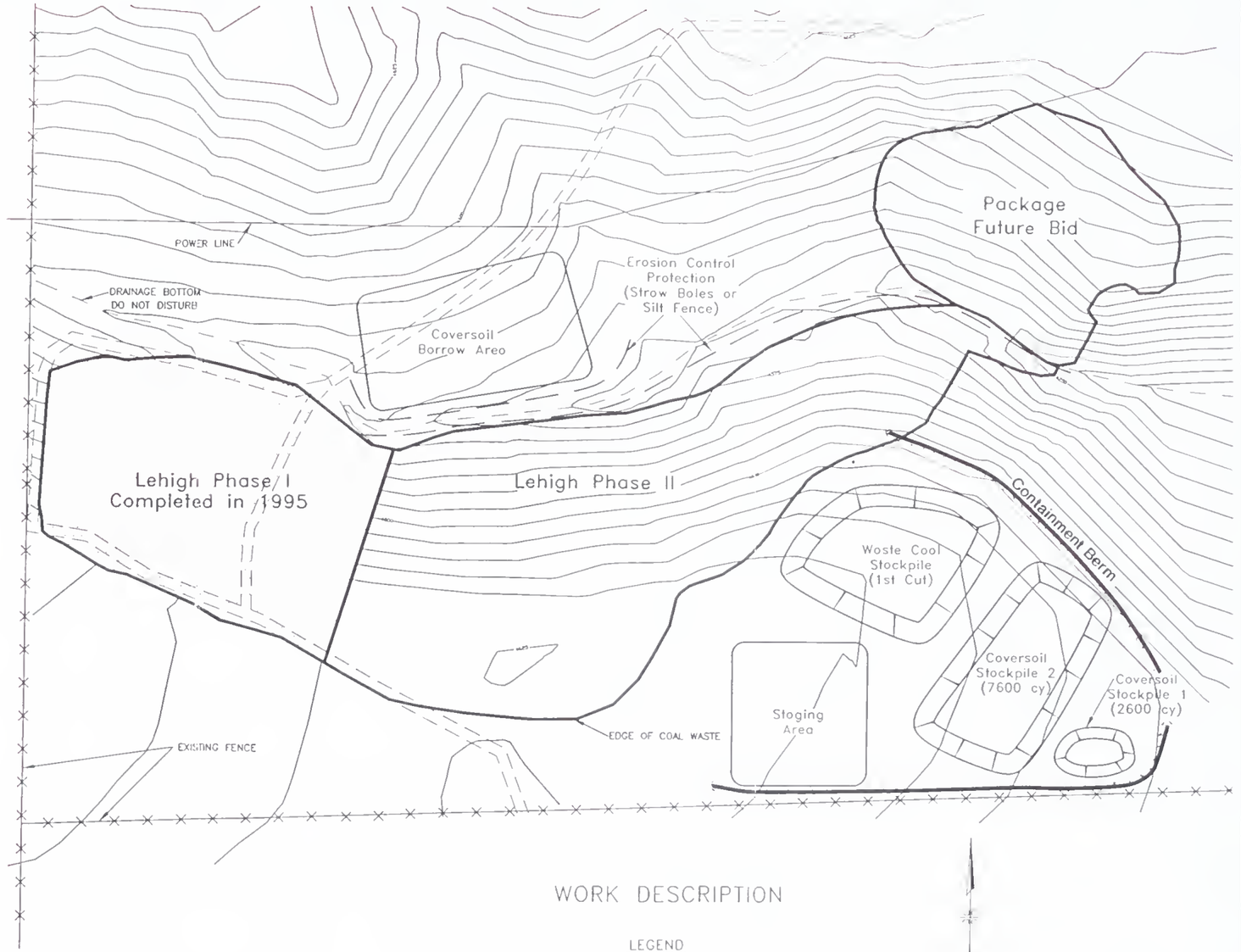
NO.	DATE	BY

SHEET NO. 3 of 4

File Name: Phase113.dwg

WORK DESCRIPTION AND LIST OF ESTIMATED WORK QUANTITIES

Estimated Quantity	Unit	Task	Work Item Description and/or Quantity Estimates
1	EACH	MPDES STORM WATER DISCHARGE PERMIT	Apply for and secure permit from Water Quality Bureau.
1	LUMP SUM	MOBILIZATION	Move all equipment and personnel to the project site and demobilize when completed. This also includes all bonds, insurance, etc.
1,650	FOOT	EROSION CONTROL PROTECTION (STRAW BALE DIKE OR SILT FENCE)	Erect either a straw bale dike or silt fence along the stream bank for erosion protection.
130	KGAL	PROVIDE WATER	Provide water for dust suppression (100 Kgal) and water (30 Kgal) for the lime/coal waste mixing process.
10,200	CU. YARD	REMOVE, STOCKPILE AND REPLACE COVERSOIL	Stockpile movement from three different areas. Staging area and waste coal stockpile (2,600 CY) and main neutralization area (7,600 CY)
16,000	TON	DELIVER LIME KILN DUST FROM CONTINENTAL LIME TO PROJECT SITE	Lime is from 3 sources at the Continental Lime Pit by Townsend. Kiln reject=2,000 tons, Pit= 11,400 tons, Silos=2,600 tons
16,000	TON	EXCAVATE COAL WASTE, NEUTRALIZE WITH LIME KILN DUST AT A DESIGN RATE OF 150-200 TONS (ACTUAL RATE WILL BE 170-224 TONS TO ACCOUNT FOR WIND LOSSES) OF LIME KILN DUST / 1000 TONS COAL WASTE & REPLACE	82,720 CY of coal waste will be excavated and thoroughly mixed with 16,000 tons of lime kiln dust (2000 tons of kiln reject, 2600 tons from silos, 6900 tons of newer pit material (dumped in 1996), 4500 tons of older pit material (pre-1996) at various rates (see table under Section III, Item 4-Bid Number 7).
7.1	ACRE	NEUTRALIZE COVERSOIL STRIPPED FROM COAL WASTE AREA WITH $CaCO_3$ AT A 60 TONS/ACRE RATE	Neutralize 7,600 CY of coversoil with 448 tons of calcium carbonate product (7.1 acres x 60 tons/acre / 95% purity)
2,900	CU. YARD	ON-SITE BORROW AND PLACE 3-INCHES OF NATIVE COVERSOIL	Strip from adjacent borrow area (180'x350'x15" depth) and over the replaced & neutralized coversoil.
10.9	ACRE	FERTILIZE, SEED, AND MULCH	All disturbed areas (neutralized area-7.1 acres; staging area-0.9 acres; waste coal stockpile area-1.4 acres; and coversoil borrow area-1.5 acres).



NOTE: Access routes, work areas, and construction limits will be field staked by the Engineer. Travel will be limited to routes flagged

The construction activity is described under the Work Description. The location and other Storm Water Information is found in the Storm Water Table on the Site Plan Cover Sheet.

The site is located adjacent to a drainage which flows into Sage Creek 1 1/4 miles away. Using the SCS method, the hydrologic soil group is C and the runoff curve number (CN) is 74

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

WORK DESCRIPTION

SECTION 21, T15N, R12E

JUDITH BASIN COUNTY, MONTANA

STATE OF MONTANA, DEPT. OF ENVIRONMENTAL QUALITY

ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

1520 East 6th Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING

Mining and Civil Engineers

1413 4th Avenue North

Billings, Montana 59101

Phone: 406-259-2412

DATE: June 1998

DRAWN BY: DLO

APPROVED BY: WCM

REVISIONS

NO.	DATE	BY

SHEET NO. 4 of 4

File Name: Phase4.dwg

ATTACHMENT 6

AS-BUILT DRAWINGS

LEHIGH PHASE II PROJECT

LOCATED IN
JUDITH BASIN COUNTY, MONTANA

MT DEQ/AMRB 94-002

PREPARED FOR:
STATE OF MONTANA

DEPT. OF ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION BUREAU

MAP SHEET INDEX

HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THIS SITE. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN.

THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THIS SITE SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF ENVIRONMENTAL QUALITY'S FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

CONSTRUCTION LIMITS

ACCESS ROUTES, WORK AREAS, AND CONSTRUCTION LIMITS WILL BE FIELD STAKED BY THE ENGINEER. VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED.

ARCHAEOLOGICAL NOTICE

THERE MAY BE ARCHAEOLOGICAL SITES IN THE VICINITY OF THIS PROJECT. ANY ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREA WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THE ARCHAEOLOGICAL SITE OR MATERIALS BE DISTURBED.

LANDOWNER

Gayle Evans
P.O. Box 3156
Stanford, MT 59479
Phone: 406-566-2509

BEST MANAGEMENT PRACTICES (BMP'S)

SITE NAME	LEGAL OESCRIPTION	DISTURBED ACRES	TIME LAPSE[1]	SURFACE WATER LOCATION[2]	STRAW BALES OR SILT FENCE
LEHIGH SITE	T15N, R12E, SEC. 21 N1/2 NE1/4	10.9	120	0	1650 FEET

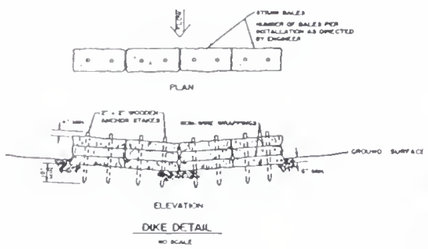
The purpose of this project is to reclaim an abandoned coal mine previously reclaimed and now requiring some additional maintenance work. The construction activity is described under the Work Oescription found on the individual Site Plans. Work tasks will include excavating buried coal waste, neutralizing this waste with lime kiln dust and replacing this coal waste, and revegetating all disturbed areas. Best Management Practices (BMP'S) during conatruction for controlling sediment and erosion in storm runoff include: temporary stabilization practices of mulching the entire area to be revegetated and placing straw bales or silt fence for erosion control (as required - aee table above); and permanent stabilization practices of seeding and fertilizing.

The Owner is the State of Montana; Department of Environmental Quality, Abandoned Mine Reclamation Bureau, Reclamation Division, 1520 East 6th Avenue, Helena, Montana 59620 at telephone 1-406-444-5440. The Project Manager is Joel Chavez.

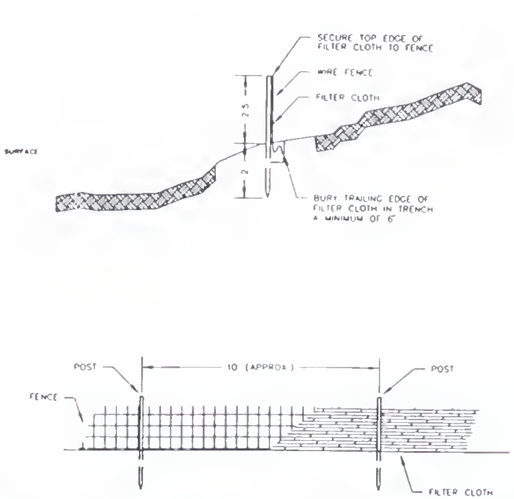
Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPDES Stormwater Oischarge Permit and Eroaion Control Plan. Good houaekeeping chorea will include as a minimum: 1) Any construction waste from materials packaging, or other Contractor generated waste will be disposed of in a licensed disposal facility; 2) If conditions on-aite become such that there is potential to track aediment off-aite, then all vehicles shall be washed down before being allowed to leave the project area. Vehicle washing will take place ao as to contain all washed sediment in such a manner aa to prevent apillage and prevent contamination of the aurrounding soil. 3) All materials shall be stored in a bermed plaatic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-aite for clean up of any spills. Any soil contaminated with petroleum wastes will be disposed of under a plan approved by the Montana Department of Health and Environmental Sciences; and 4) Lime and fertilizer ahall be atored on pallets off the ground and covered with plastic or in auch a manner as to prevent spillage and washing from rain water or wind into aurrounding soil or off-site.

FOOTNOTES:
1. Estimated time period in days from the atart of construction until the aite is permanently fertilized and aeeded. Thia is the time from site arrival until demobilization. Temporary stabilization will include mulch and straw bales or ailt fence as outlined above.
2. The distance in miles to the nearest aource of potential aurface water including rivers and atreama (perennial, intermittent or current dry drainages). A full description of diatances to water sources is shown on the individual Site Plans.

EROSION CONTROL BALE CHECK

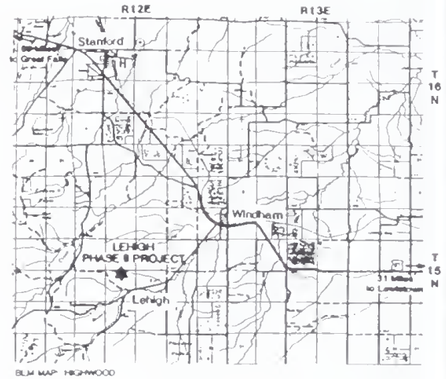


SEDIMENT CONTROL FENCE

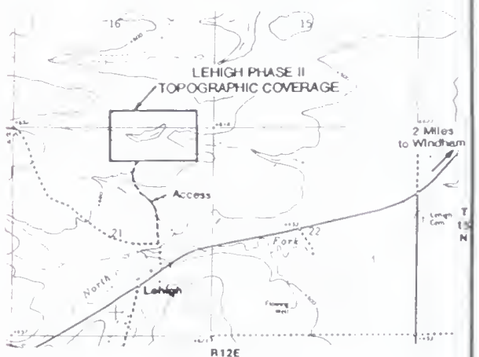


MATERIALS FOR FILTER CLOTH FENCE SHALL CONSIST OF STAN... WOVEN LIVESTOCK WIRE A MINIMUM OF 36 INCHES IN HEIGHT. A MINIMUM OF 14-½ GAGE WIRE WITH A MAXIMUM MESH SPACING OF 6 INCHES. POSTS SHALL BE EITHER WOOD OR STEEL, MINIMUM LENGTH OF 4.5 FEET

STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE WORK SHOWN ON THIS MAP WAS PREPARED BY ME OR UNDER MY SUPERVISION.

William C. Maehl
Montana P.E. No. 6274 PE

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

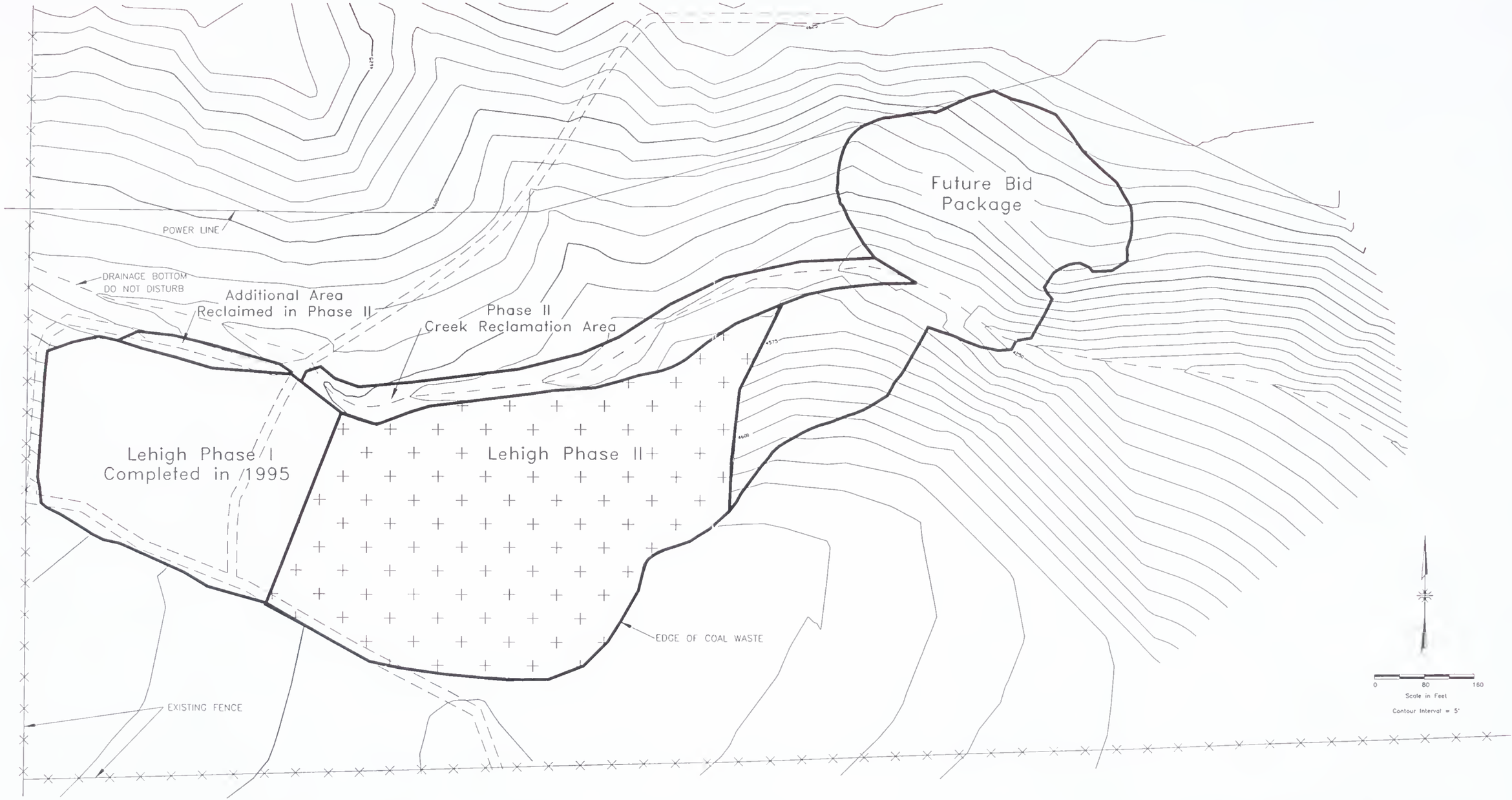
SECTION 21, T15N, R12E
JUDITH BASIN COUNTY, MONTANA

STATE OF MONTANA, DEPT. OF ENVIRONMENTAL QUALITY
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1520 East 6th Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-256-2412

DATE June 1996
DRAWN BY DLO
APPROVED BY WCM
REVISIONS
NO. DATE BY

SHEET NO. 1 of 4



CURRENT TOPOGRAPHY

LEGEND

- —4600— Contour
- Access Road
- Lehigh Phase I Completed in 1995
- Lime Kiln Dust Treatment Area Lehigh Phase II Project

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

CURRENT TOPOGRAPHY
SECTION 21, T15N, R12E
JUDITH BASIN COUNTY, MONTANA

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ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1520 East 6th Avenue, Helena, Montana 59620

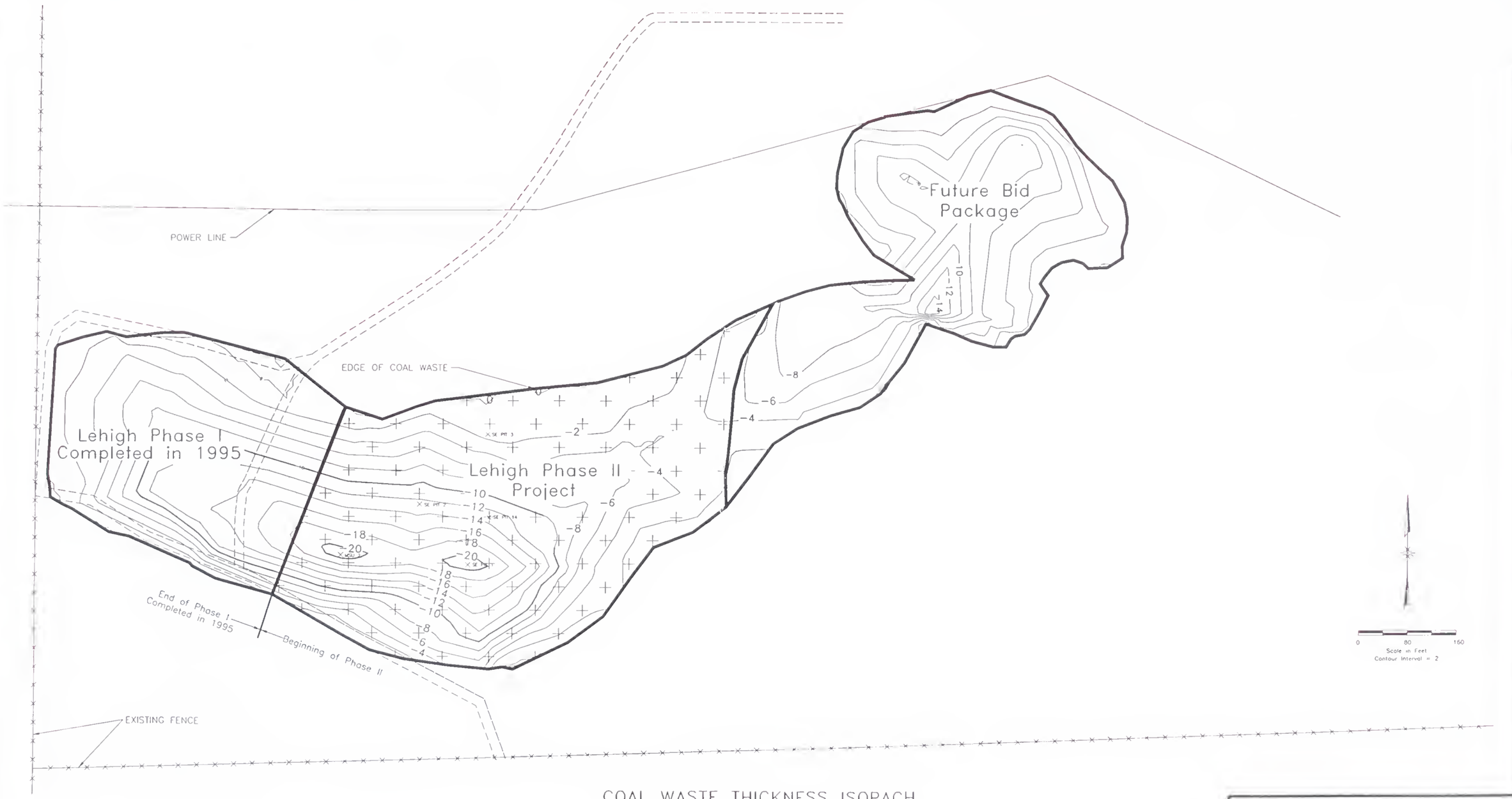
SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

DATE: December 1998
DRAWN BY: DLO
APPROVED BY: WCM
REVISIONS

NO.	DATE	BY

SHEET NO. 2 of 4

File Name: ASBLTII2.dwg



COAL WASTE THICKNESS ISOPACH

TEST PIT DATA

Test Pit Number	Cover Soil Thickness (in)	Coal Waste Thickness (ft)
SE PIT 1	0	21.50
SE PIT 2	7	12.67
SE PIT 3	6	1.25
SE PIT 14	6	13.08
MSU 2	0 - 6	21.33

LEGEND

—10— Coal Waste Thickness Contour

× SE PIT 1 Test Pit Number and Locotion

Access Road

Lehigh Phase I Completed in 1995

Lime Kiln Dust Treatment Area Lehigh Phase II Project

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

COAL WASTE THICKNESS ISOPACH

SECTION 21, T15N, R12E

JUDITH BASIN COUNTY, MONTANA

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ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1520 East 6th Avenue, Helena, Montana 59620

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1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

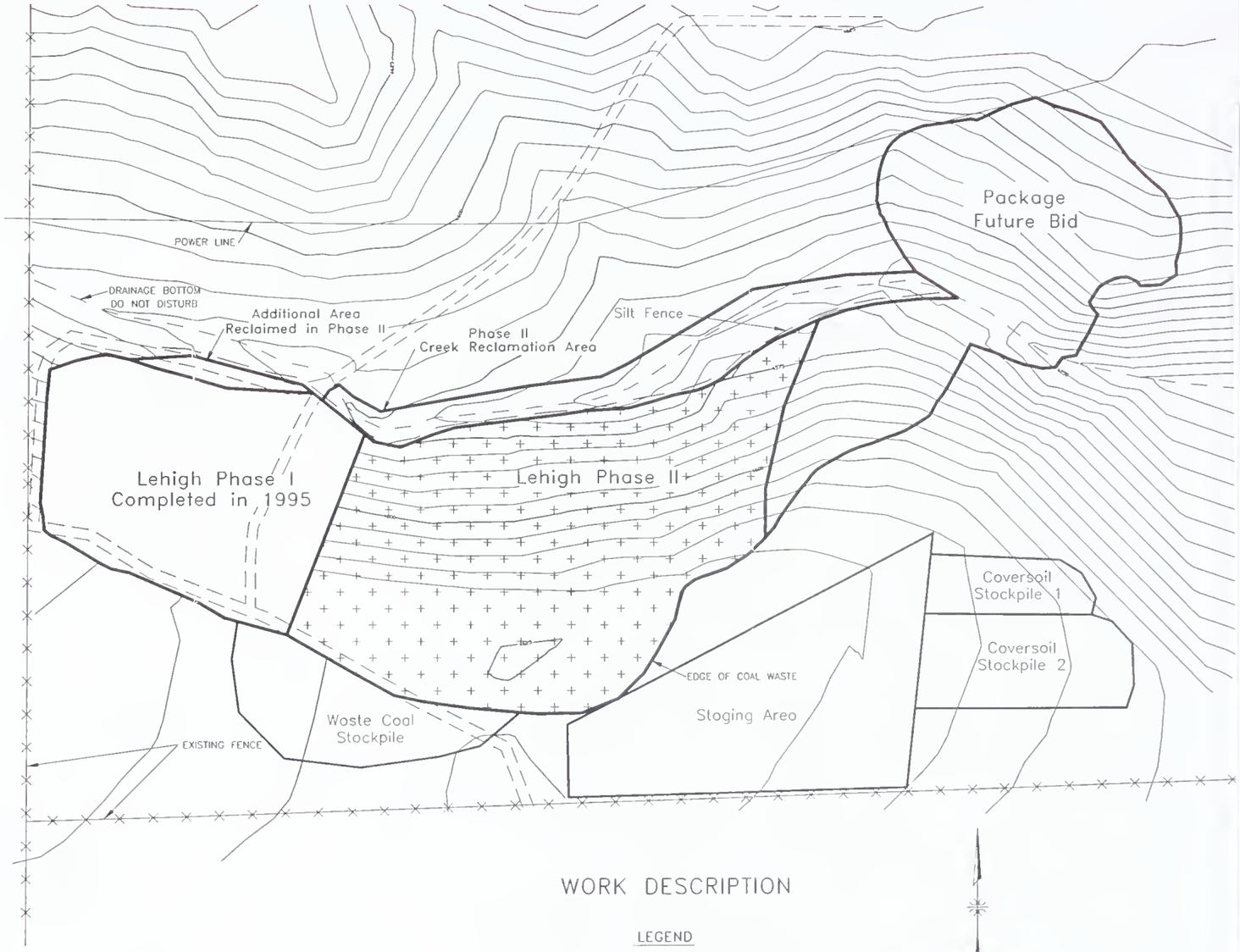
DATE: December 1996
DRAWN BY: DLO
APPROVED BY: WCM
REVISIONS: NO. | DATE | BY

SHEET NO. 3 of 4

File Name: ASBLT113.dwg

WORK DESCRIPTION AND LIST OF ESTIMATED WORK QUANTITIES

Estimated Quantity	Unit	Task	Work Item Description and/or Quantity Estimates
1	EACH	MPDES STORM WATER DISCHARGE PERMIT	Apply for and secure permit from Water Quality Bureau.
1	LUMP SUM	MOBILIZATION	Move all equipment and personnel to the project site and demobilize when completed. This also includes all bonds, insurance, etc.
1,300	FOOT	EROSION CONTROL PROTECTION (SILT FENCE)	Erect silt fence along the stream bank for erosion protection.
1709	KGAL	PROVIDE WATER	Provide water for dust suppression and water for the lime/coal waste mixing process.
5,560	CU. YARD	REMOVE, STOCKPILE AND REPLACE COVERSOIL	Stockpile movement from three different areas (Staging area, waste coal stockpile and main neutralization area)
15,846	TON	DELIVER LIME KILN DUST FROM CONTINENTAL LIME TO PROJECT SITE	Lime is from 3 sources at the Continental Lime Pit by Townsend.
15,846	TON	EXCAVATE COAL WASTE, NEUTRALIZE WITH LIME KILN DUST AT A DESIGN RATE OF 150-200 TONS (ACTUAL RATE WILL BE 170-224 TONS TO ACCOUNT FOR WIND LOSSES) OF LIME KILN DUST / 1000 TONS COAL WASTE & REPLACE	86,832 Tons or 86,832 CY (at 12% moisture) of coal waste will be excavated and thoroughly mixed with 15,846 tons of lime kiln dust (see table under Section III, Item 4 of Bid Number 7).
6.92	ACRE	NEUTRALIZE COVERSOIL STRIPPED FROM COAL WASTE AREA WITH $CaCO_3$ AT A 60 TONS/ACRE RATE	Neutralize coversoil and soil excavated from creek bottom
10,410	CU. YARD	ON-SITE BORROW AND PLACE 3-INCHES OF NATIVE COVERSOIL	Strip from designated borrow area and replace over the neutralized coversoil.
22.0	ACRE	FERTILIZE, SEED, AND MULCH	All disturbed areas including Phase I, coversoil borrow area, creek bottom, staging area, and Phase II.



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The construction activity is described under the Work Description. The location and other Storm Water Information is found in the Storm Water Table on the Site Plan Cover Sheet.

The site is located adjacent to a drainage which flows into Sage Creek 1 1/4 miles away. Using the SCS method, the hydrologic soil group is C and the runoff curve number (CN) is 74.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

LEHIGH PHASE II PROJECT

WORK DESCRIPTION

SECTION 21, T15N, R12E

JUDITH BASIN COUNTY, MONTANA

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Phone: 406-259-2412

DATE: December 1996
DRAWN BY: DLO
APPROVED BY: WCM
REVISIONS
NO. DATE BY

SHEET NO. 4 of 4

File Name: ASBLT114.dwg

ATTACHMENT 7

LIME RATE ANALYSIS

LEHIGH PHASE II PROJECT
MIXED COAL AND LIME KILN DUST ANALYSIS

COMPOSITE SAMPLE DATES	NEUTRAL POTENTIAL T/1000 T	HNO3 SULFUR %	RESIDUAL SULFUR %	HCL SULFUR %	SMP LIME REQUIRED T/1000 T	OVERLIMING CALCULATION TONS/1000 T
08/12-16/1996	156	1.46	1.03	0.01	0.1	78
08/19-23/1996	207	2.14	0.83	0.05	0.1	113
08/26-30/1996	156	1.38	0.96	0.01	0.1	83
09/03-07/1996	156	1.13	1.03	0.16	0.1	85

TOTAL LIME = [[NEUTRALIZATION POTENTIAL - (HNO3 S + RESIDUAL S) 31.25 + (HCL S) 23.44] + SMP LIME REQUIREMENT]

	TONS OF LIME USED	TONS OF COAL PROCESSED	AVERAGE LIME RATE DURING THE WEEK	LIME RATE WITHOUT EXCESS LIME	EXCESS TONS OF LIME USED
08/12-16/1996	3315.19	18572	179	101	1447
08/19-23/1996	3867.10	21579	179	66	2436
08/26-30/1996	4846.98	26460	183	101	2183
09/03-07/1996	3817.08	20221	189	104	1711
TOTAL	15846.35	86832	182	93	7777

Minimum overliming rate was the first week at 78 tons of lime too much per 1000 tons of coal slack.
Average overliming rate for the Lehigh Phase II was 89 (182 average used - 93 average needed) tons of lime too much per 1000 tons of coal slack.
For Phase II the confidence level was dropped from 90% to 50% due to an average overliming rate of 166 tons of lime too much per 1000 tons of coal slack for Lehigh Phase I in 1995.

Three sources of lime came from the Continental Pit for Phase II. These included silo material at an application rate of 150 T/1000 T; kiln reject pile at 159 T/1000 T; and pit 169 T/1000 T. All of these three numbers were increased by 12% to account for wind loss during mixing (to 170 for silo material, 180 for kiln reject material and 190 for pit material).

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

TO: William C. Maehl, P.E.
ADDRESS: Spectrum Engineering
1413 4th Ave. North
Billings, MT 59101

LAB NO.: 96-50659-60
DATE: 08/26/96 da

SOIL ANALYSIS

Submitted 08/19/96

Sample No.	50659	50660
Location	LeHigh Phase II Day Sample 8/14/96	LeHigh Phase II Weekly Composite 8/12–16/96
Lime Requirement, T/1000 Tons (1)*	<0.1	<0.1
Lime, % as CaCO3	16.6	15.6
Neut. Pot., T/1000 Tons (1)	166	156
Acid Pot., T/1000 Tons (1)	103	78
Acid/Base Pot., T/1000 Tons (1)	62	78
Total Sulfur, %	4.38	3.67
Hot H20 Extractable Sulfur, %	1.07	1.18
HCl Extractable Sulfur, %	<0.01	<0.01
HNO3 Extractable Sulfur, %	2.18	1.46
Residual Sulfur, %	1.13	1.03

(1) T CaCO3/1000 Tons Soil
* SMP Buffer

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

TO: Bill Maehl
ADDRESS: Spectrum Engineering
1413 4th Avenue North
Billings, MT 59101

LAB NO.: 96-51553-54
DATE: 08/30/96 da

SOIL ANALYSIS

Submitted 08/26/96

Sample No.	51553	51554
Location	LeHigh Phase II Day Sample 8/21/96	LeHigh Phase II Weekly Composite 8/19–23/96
pH s.u. (1)	12.2	12.0
Lime Requirement, T/1000 Tons (2)*	<0.1	<0.1
Lime, % as CaCO3	43.1	20.7
Neut. Pot., T/1000 Tons (2)	431	207
Acid Pot., T/1000 Tons (2)	48	94
Acid/Base Pot., T/1000 Tons (2)	384	112
Total Sulfur, %	1.91	3.58
Hot H20 Extractable Sulfur, %	0.38	0.56
HCl Extractable Sulfur, %	0.10	0.05
HNO3 Extractable Sulfur, %	0.87	2.14
Residual Sulfur, %	0.56	0.83

(1) 1:1 DI H2O
(2) T CaCO3/1000 Tons Soil
* SMP Buffer

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

TO: Bill Maehl
ADDRESS: Spectrum Engineering
1413 4th Avenue North
Billings, MT 59101

LAB NO.: 96-52512-13
DATE: 09/18/96 kr

SOIL ANALYSIS

Submitted 09/04/96

Sample No.	52512	52513
Location	LeHigh Phase II Weekly Composite 8/26 thru 8/30/96	LeHigh Phase II Day Composite 8/28/96
pH s.u. (1)	11.6	12.2
Lime Requirement, T/1000 Tons (2)*	<0.1	<0.1
Lime, % as CaCO3	15.6	18.3
Neut. Pot., T/1000 Tons (2)	156	183
Acid Pot., T/1000 Tons (2)	73	73
Acid/Base Pot., T/1000 Tons (2)	83	111
Total Sulfur, %	3.34	3.22
Hot H20 Extractable Sulfur, %	1.00	0.90
HCl Extractable Sulfur, %	<0.01	0.16
HNO3 Extractable Sulfur, %	1.38	1.33
Residual Sulfur, %	0.96	0.83

(1) 1:1 DI H2O
(2) T CaCO3/1000 Tons Soil
* SMP Buffer

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
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LABORATORY REPORT

TO: Bill Maehl
ADDRESS: Spectrum Engineering
1413 4th Avenue North
Billings, MT 59101

LAB NO.: 96-52974-75
DATE: 09/18/96 kr

SOIL ANALYSIS

Submitted 09/10/96

Sample No.	52974	52975
Location	LeHigh Phase II Daily Composite 9/05/96	LeHigh Phase II Weekly Composite 9/3 thru 9/7/96
pH s.u. (1)	12.0	12.0
Lime Requirement, T/1000 Tons (2)*	<0.1	<0.1
Lime, % as CaCO3	20.8	15.6
Neut. Pot., T/1000 Tons (2)	208	156
Acid Pot., T/1000 Tons (2)	73	73
Acid/Base Pot., T/1000 Tons (2)	135	84
Total Sulfur, %	3.34	3.22
Hot H20 Extractable Sulfur, %	1.00	0.90
HCl Extractable Sulfur, %	<0.01	0.16
HNO3 Extractable Sulfur, %	1.42	1.13
Residual Sulfur, %	0.92	1.03

(1) 1:1 DI H2O
(2) T CaCO3/1000 Tons Soil
* SMP Buffer

ATTACHMENT 8

PHOTOGRAPHS/SLIDES

PHOTO LISTING

PHOTOS/SLIDES

LEHIGH PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
1	08-06-96	Contractor's equipment - D8N Cat. dozer
2	08-06-96	Contractor's equipment - D9G Cat. dozer
3	08-06-96	Contractor's equipment - 627 B Cat. scraper
4	08-06-96	Contractor's equipment - 627 B Cat. scraper
5	08-06-96	Contractor's equipment - 633C Cat. paddle wheel scraper
6	08-06-96	Contractor's equipment - 980C Cat wheel loader
7	08-06-96	Contractor's equipment - 140G Cat. motor grader
8	08-06-96	Contractor's equipment - 416 Cat. backhoe/loader
9	08-06-96	Contractor's equipment - EL300 Cat. excavator
10	08-06-96	Contractor's equipment - '67 Peterbilt Water truck
11	08-06-96	Contractor's equipment - '65 Kenworth fuel truck
12	08-06-96	Contractor's equipment - Trailer used for field office
13	08-06-96	Contractor's equipment - Mack service truck
14	08-06-96	Contractor's equipment - Bros Roto Mixer (not used)
15	08-06-96	Contractor's equipment - Rome disc
16	08-06-96	Contractor's equipment - Case 480E backhoe/ loader with Brillion seeder
17	08-06-96	Contractor's equipment - Manure spreader (used to spread straw mulch)
18	08-06-96	Contractor's equipment - Crimper
19	08-06-96	Contractor's equipment - 6" water pump
20	08-06-96	Contractor's equipment - Installing truck scale
21	08-06-96	Contractor's equipment - Truck scale
22	08-06-96	Contractor's equipment - Scale control house
23	08-06-96	Pre-Construction - View of project area
24	08-06-96	Salvage coversoil - Stripping hillside
25	08-09-96	Salvage coversoil - Phase II area stripped

LEHIGH PHASE II PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
26	08-09-96	Salvage coversoil - Phase II area stripped
27	08-07-96	Salvage coversoil - Stockpile
28	08-16-96	Silt Fence
29	08-06-96	Neutralize coal waste - Roto mixer trial
30	08-15-96	Neutralize coal waste - Spreading water
31	08-06-96	Neutralize coal waste - Digging trench to dump kiln dust
32	08-06-96	Neutralize coal waste - Dumping kiln dust into ditch
33	08-07-96	Neutralize coal waste - Kiln dust in trench
34	08-07-96	Neutralize coal waste - Paddle wheel mixing kiln dust and coal waste
35	08-08-96	Neutralize coal waste - Stockpiling neutralized coal waste
36	08-08-96	Neutralize coal waste - Stockpiling neutralized coal waste
37	08-13-96	Neutralize coal waste - Excavating coal waste
38	08-13-96	Neutralize coal waste - Building pad for mixing kiln dust and coal waste
39	08-15-96	Neutralize coal waste - Watering, grading and stockpiling processed waste
40	08-15-96	Neutralize coal waste - Processed waste stockpile
41	08-15-96	Neutralize coal waste - Excavating coal waste along creek bottom
42	08-19-96	Neutralize coal waste - Push loading scrapers
43	08-19-96	Neutralize coal waste - Push loading scrapers
44	Aug 1996	Neutralize coal waste - Typical mixing trench
45	Aug 1996	Neutralize coal waste - Typical weighing kiln dust delivery
46	Aug 1996	Neutralize coal waste - Typical towing trucks through mixing area
47	Aug 1996	Neutralize coal waste - Typical dumping kiln dust
48	Aug 1996	Neutralize coal waste - Typical kiln dust dumped in mixing area
49	Aug 1996	Neutralize coal waste - Typical leaving mixing area

LEHIGH PHASE II PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
50	Aug 1996	Neutralize coal waste - Typical start mixing process
51	Aug 1996	Neutralize coal waste - Typical paddle wheel mixing
52	Aug 1996	Neutralize coal waste - Typical paddle wheel mixing
53	08-16-96	Neutralize coal waste - Coal waste removed along creek bottom
54	08-16-96	Neutralize coal waste - Processed waste stockpile and mixing pad
55	08-19-96	Neutralize coal waste - Scraper loading coal waste
56	08-21-96	Neutralize coal waste - Panorama of project
57	08-21-96	Neutralize coal waste - Panorama of project
58	08-22-96	Neutralize coal waste - Mixing pad prepared for receiving 9 loads of kiln dust
59	08-26-96	Neutralize coal waste - Processed waste stockpile continuing to build up
60	Aug 1996	Neutralize coal waste - Excavating coal waste near creek bottom
61	Aug 1996	Neutralize coal waste - Loading coal waste on hillside
62	Aug 1996	Neutralize coal waste - Mixing kiln dust and coal waste
63	Aug 1996	Neutralize coal waste - Mixing kiln dust and coal waste
64	Aug 1996	Neutralize coal waste - Mixing kiln dust and coal waste
65	Aug 1996	Neutralize coal waste - Watering pad
66	Aug 1996	Neutralize coal waste - View of top of processed waste stockpile
67	08-27-96	Neutralize coal waste - Coal waste nearly removed from Phase II area
68	08-27-96	Neutralize coal waste - 633C hauling processed waste to backfill area
69	08-28-96	Neutralize coal waste - Backfilling
70	08-28-96	Neutralize coal waste - Applying water and discing to suppress dust
71	08-27-96	Neutralize coal waste - 633C on stockpile
72	08-28-96	Neutralize coal waste - Discing stockpile
73	08-28-96	Neutralize coal waste - Dumping kiln dust on mixing pad

LEHIGH PHASE II PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
74	08-28-96	Neutralize coal waste - Mixing and stockpiling coal waste and kiln dust
75	08-28-96	Neutralize coal waste - Mixing kiln dust and coal waste on the pad
76	09-03-96	Neutralize coal waste - Panorama of project showing progress at start of October
77	09-03-96	Neutralize coal waste - Panorama of project showing progress at start of October
78	09-04-96	Neutralize coal waste - Backfilling excavated area
79	09-05-96	Neutralize coal waste - Processed material stockpiled above excavated area
80	09-06-96	Neutralize coal waste - Discing hard coal waste on pad
81	09-06-96	Neutralize coal waste - Weighing final load of kiln dust
82	09-06-96	Neutralize coal waste - Final load dumping
83	09-09-96	Neutralize coal waste - Mixing final pads
84	09-11-96	Neutralize coal waste - Aerial view of project with all material processed and in stockpile
85	09-11-96	Neutralize coal waste - Aerial view of project with all material processed and in stockpile
86	09-11-96	Neutralize coal waste - Aerial view of project with all material processed and in stockpile
87	09-11-96	Neutralize coal waste - Aerial view of project with all material processed and in stockpile
88	09-11-96	Neutralize coal waste - Aerial view of project with all material processed and in stockpile
89	09-11-96	Neutralize coal waste - Paddle wheel loading on processed waste stockpile
90	09-12-96	Neutralize coal waste - Excavating processed waste stockpile
91	09-13-96	Neutralize coal waste - Spreading processed waste
92	09-16-96	Neutralize coal waste - Grading processed waste in backfill area
93	09-16-96	Neutralize coal waste - Processed waste graded in backfill area

LEHIGH PHASE II PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
94	09-16-96	Neutralize coal waste - Processed waste graded in backfill area
95	09-16-96	Neutralize coal waste - Processed waste graded in backfill area
96	08-09-96	Reclaim creek bottom - Pre-construction
97	09-19-96	Reclaim creek bottom - Excavating acidified silt from creek bottom
98	09-19-96	Reclaim creek bottom - Load/haul silt
99	09-24-96	Reclaim creek bottom - Creek bottom graded and dressed with coversoil
100	10-02-96	Reclaim creek bottom - Creek bottom reclaimed
101	10-02-96	Reclaim creek bottom - Creek bottom reclaimed
102	10-02-96	Reclaim creek bottom - Creek bottom reclaimed
103	09-18-96	Coversoil Replacement - Soil borrow area
104	09-18-96	Coversoil Replacement - Borrow area cleared
105	09-23-96	Coversoil Replacement - Loading coversoil from stockpile
106	09-23-96	Coversoil Replacement - Spreading coversoil
107	09-24-96	Coversoil Replacement - Spreading coversoil
108	09-24-96	Coversoil Replacement - Spreading coversoil
109	09-27-96	Coversoil Replacement - Edge of Phase II graded
110	08-29-96	Revegetation - Delivering straw for mulch
111	09-16-96	Revegetation - Spreading calcium-carbonate on coversoil
112	09-30-96	Revegetation - Drill seeding
113	10-01-96	Revegetation - Spreading straw mulch
114	10-02-96	Revegetation - Crimping straw mulch
115	10-02-96	Revegetation - Crimped mulch
116	10-02-96	Revegetation - Mulched area
117	10-02-96	Post-construction - Phase II completed

CONTRACTOR'S EQUIPMENT


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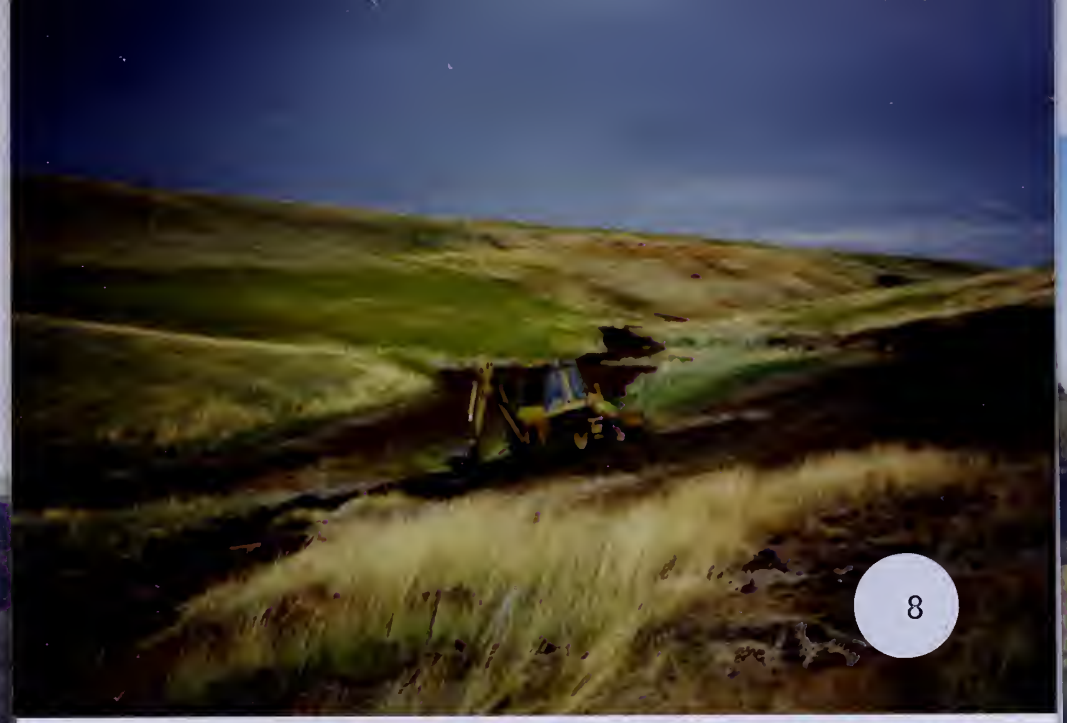

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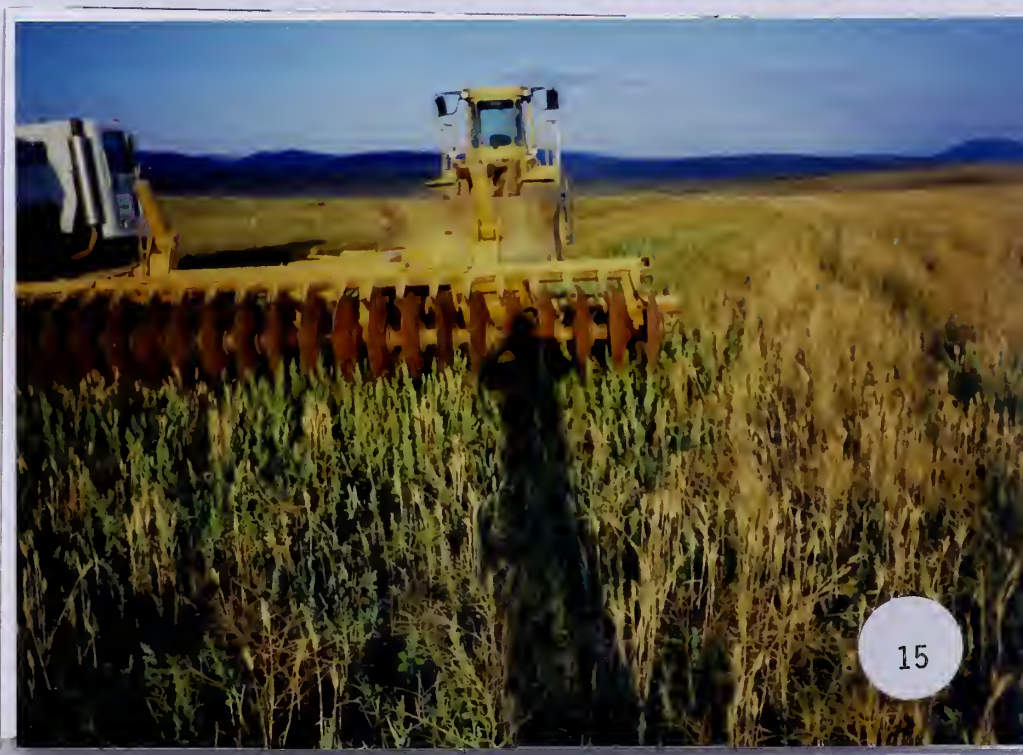
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LEHIGH PHASE II PRE-CONSTRUCTION VIEW

AUGUST 1996

SALVAGE COVERSOIL

SILT FENCE

NEUTRALIZE COAL WASTE


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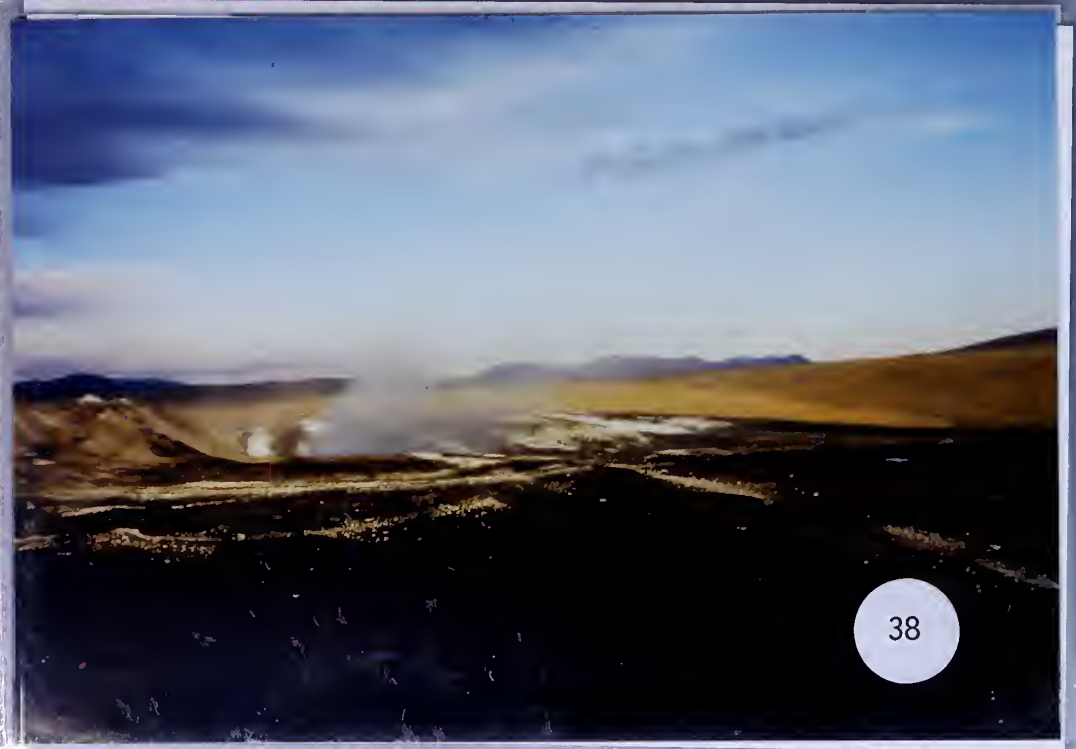
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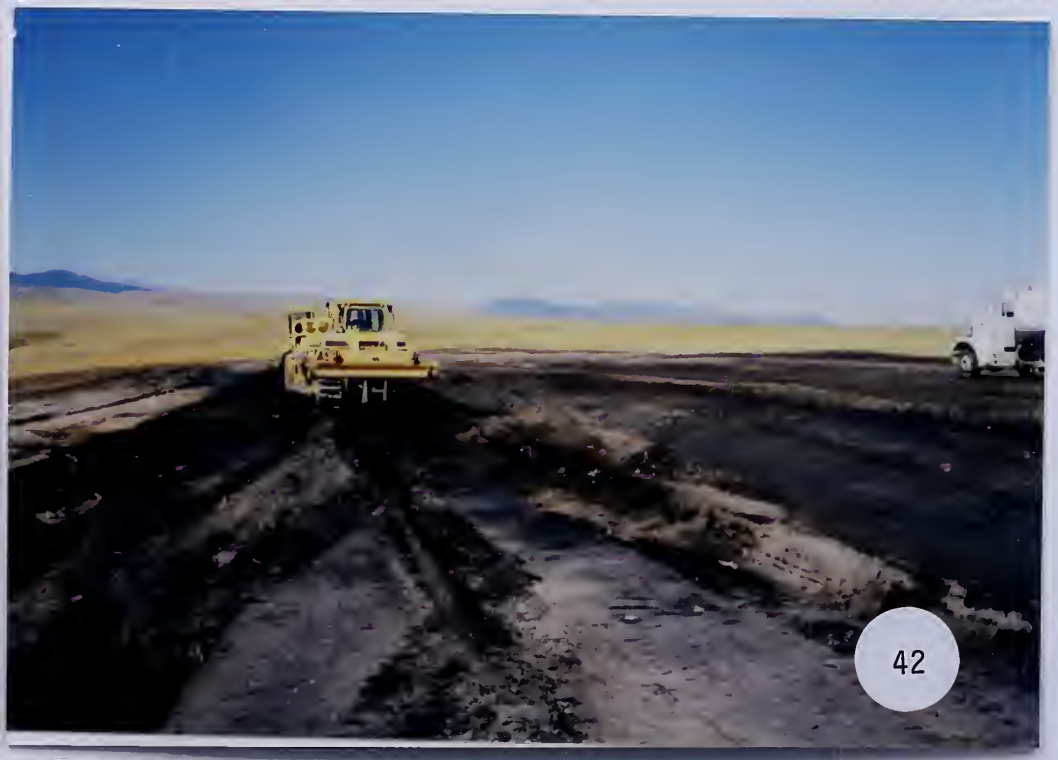
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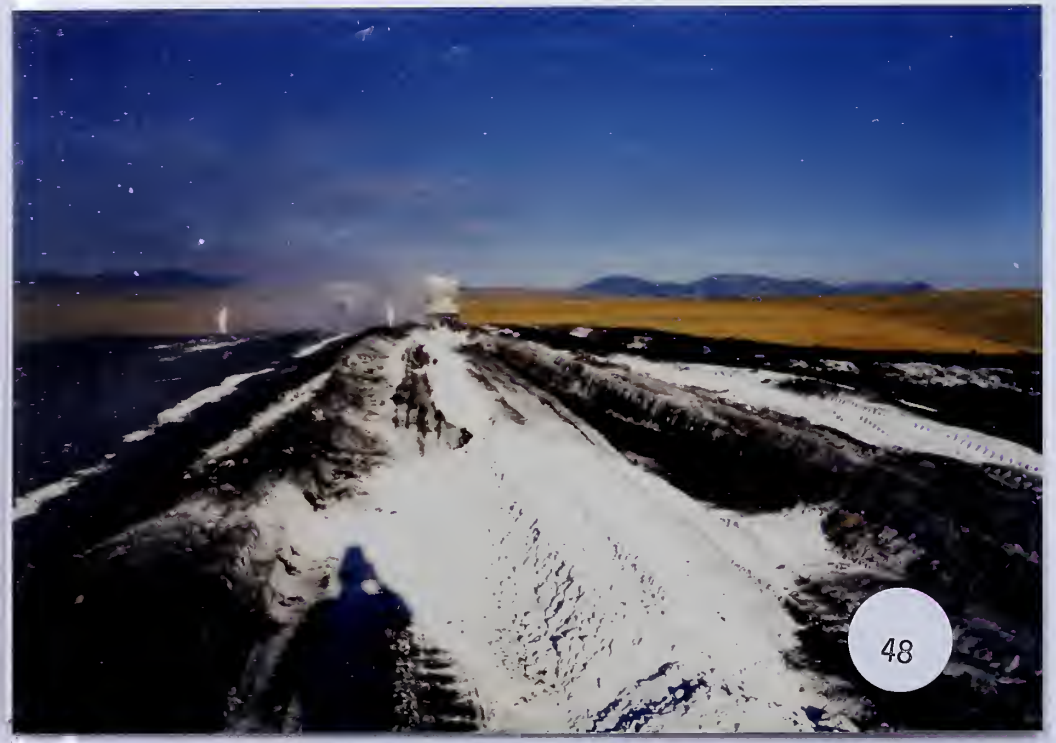
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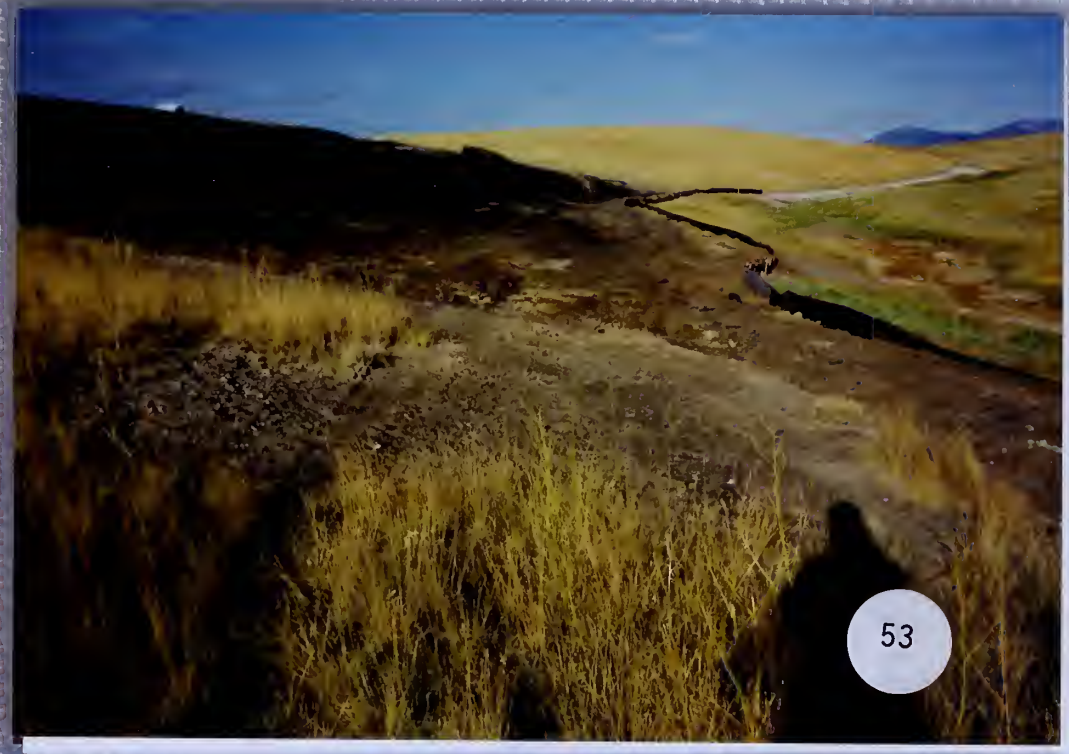
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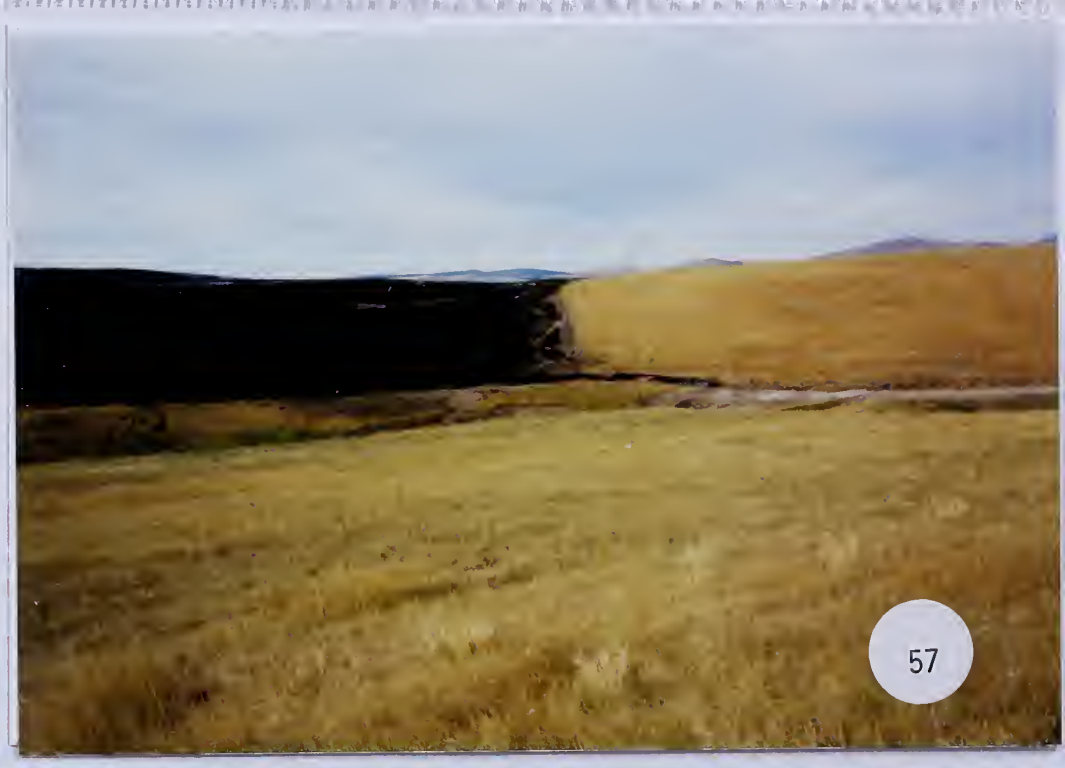
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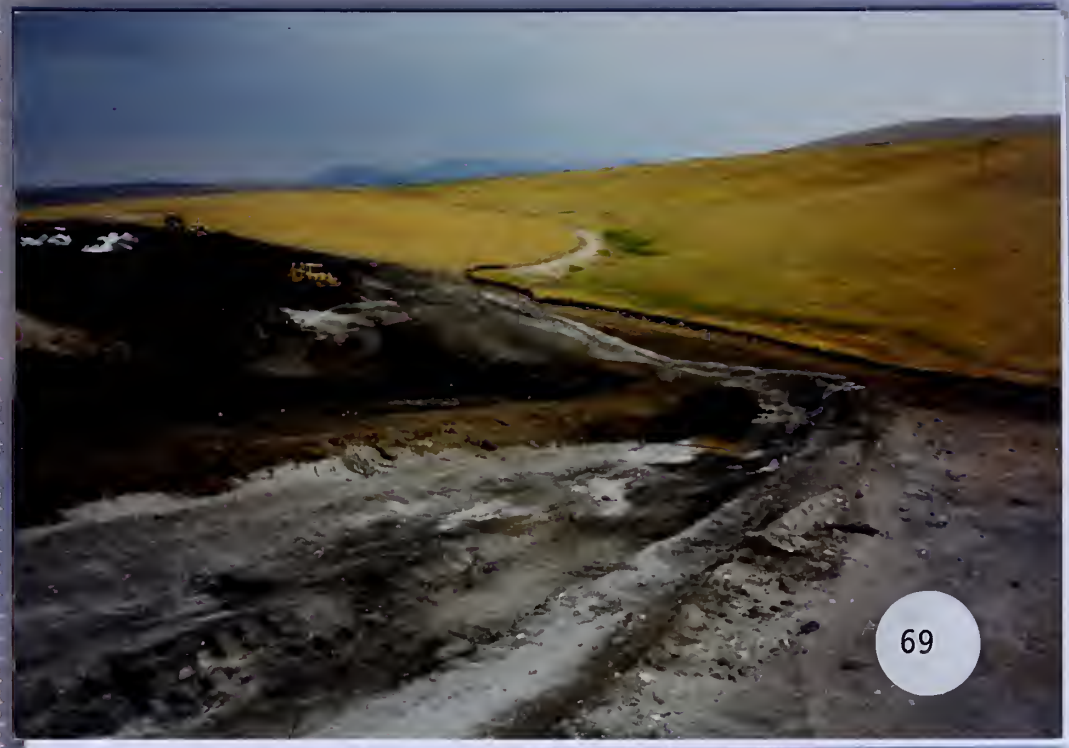
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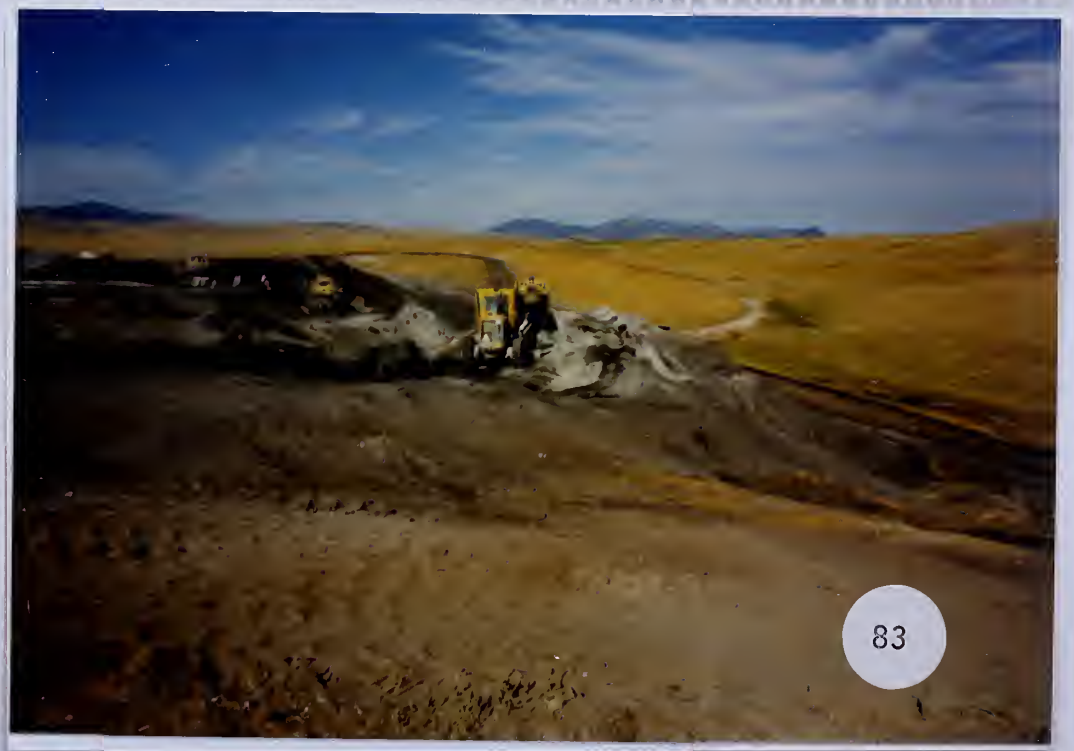
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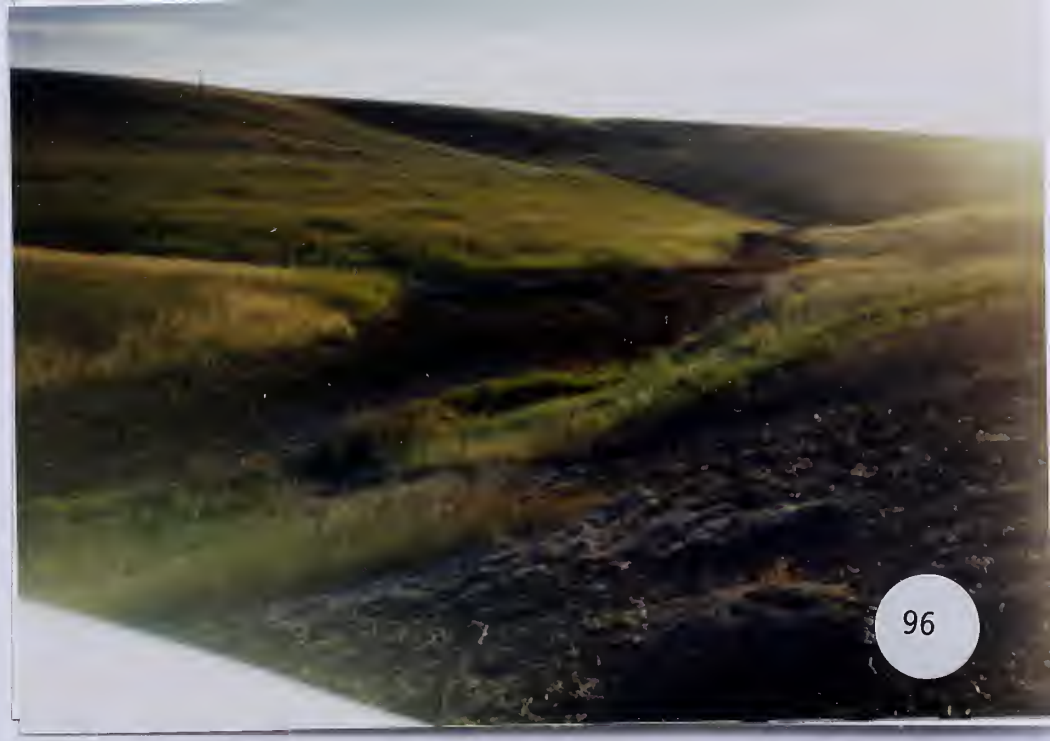
RECLAIM CREEK BOTTOM

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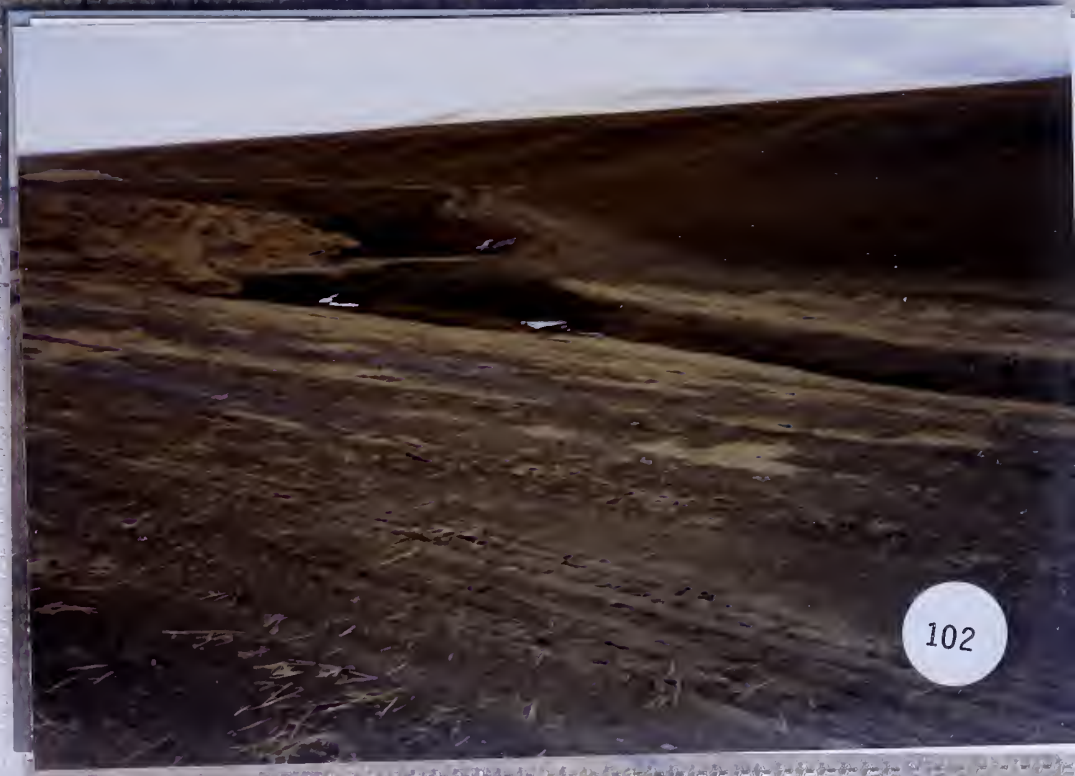
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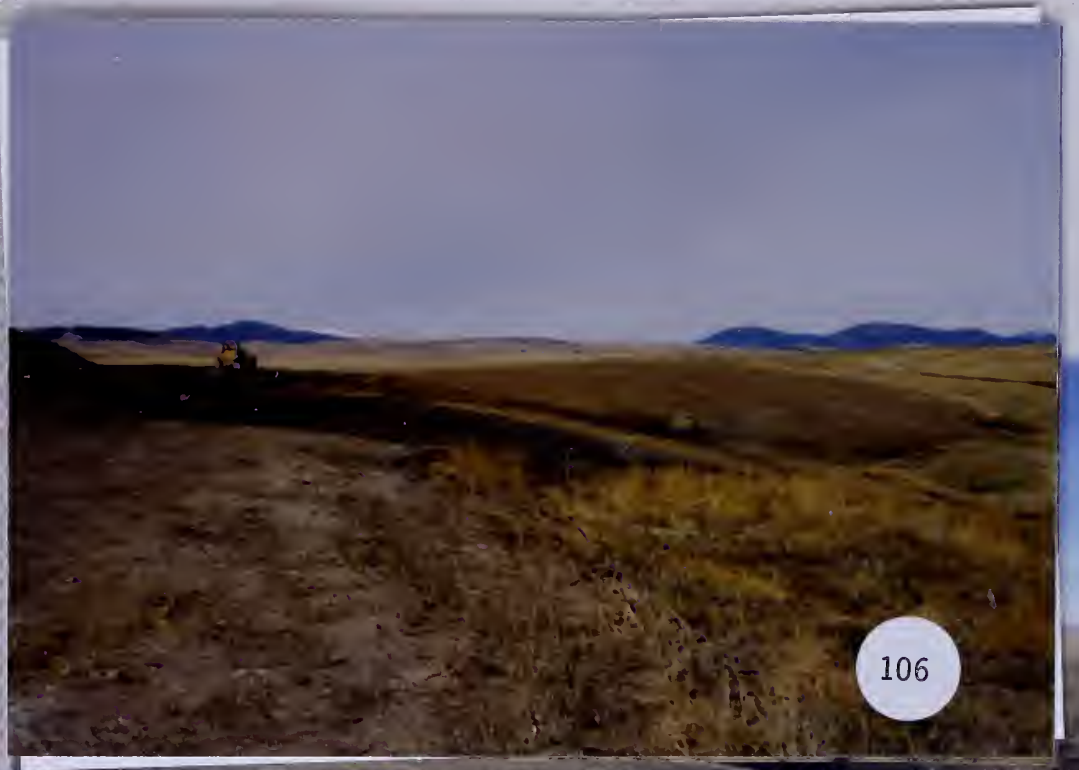
COVERSOIL REPLACEMENT



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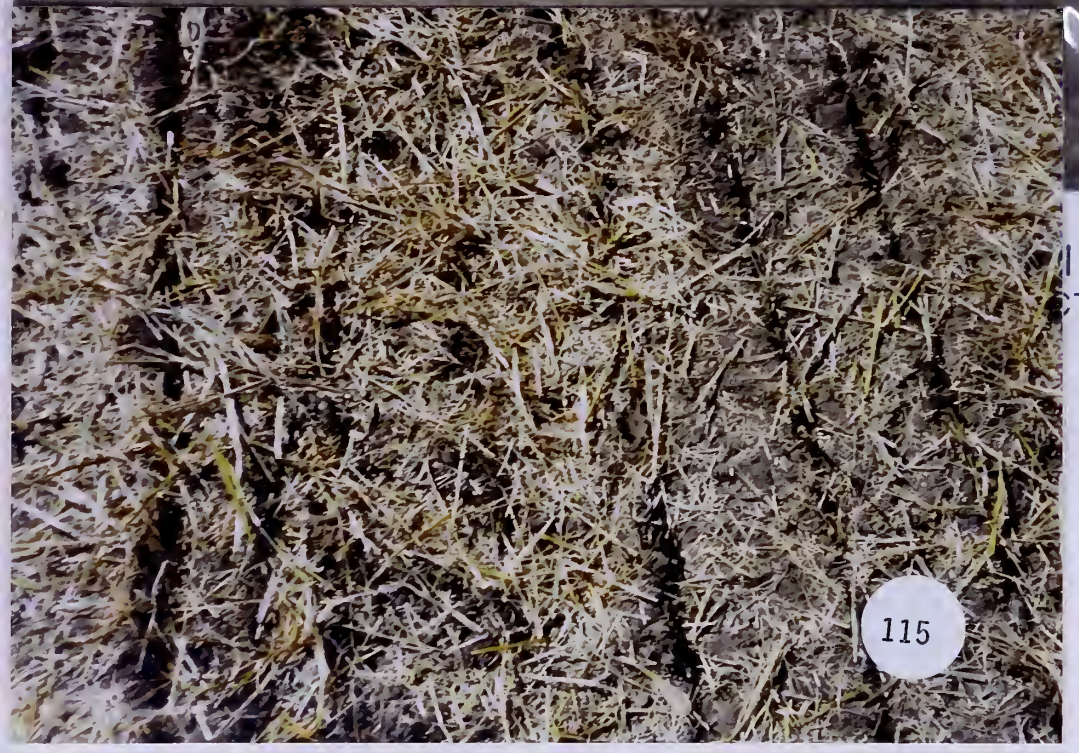
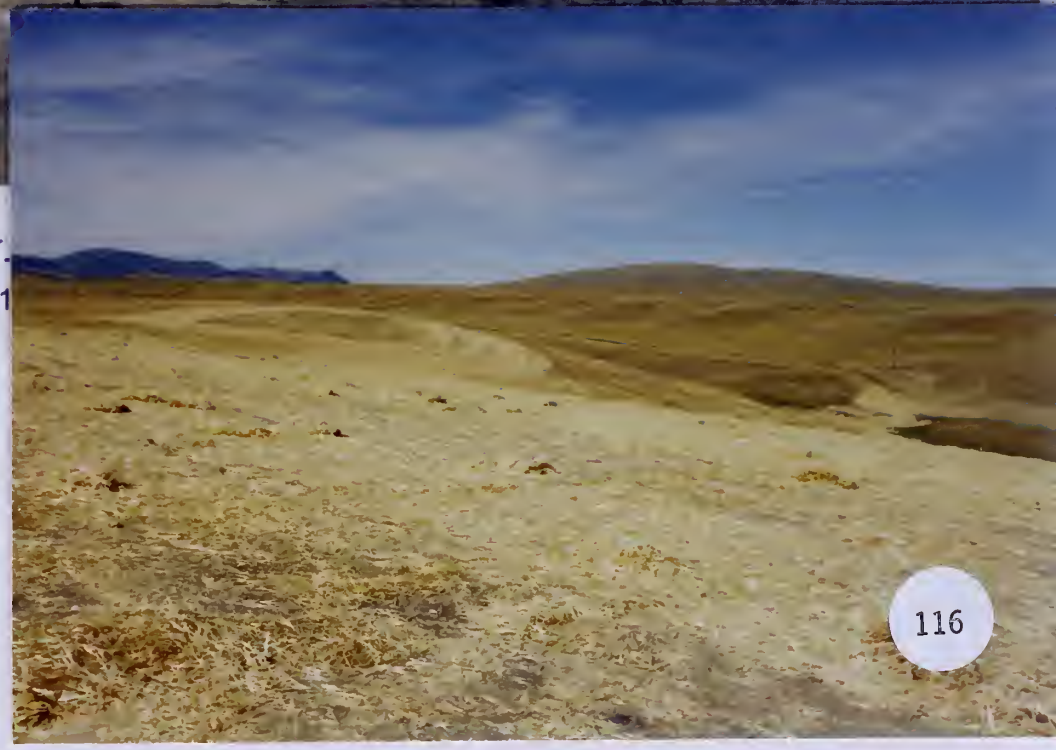
REVEGETATION





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LEHIGH PHASE II POST- CONSTRUCTION
OCTOBER 1996